MEDICINE SURGERY

INDUSTRIAL HEALTH
OCCUPATIONAL DISEASES
TRAUMATIC, INDUSTRIAL

INDUSTRIAL HYGIENE
INDUSTRIAL MEDICINE
& RAILROAD SURGERY

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THE *motif* of this issue emerges in the form of emphasis on the close relationship between industrial medicine and public health. There are problems in each of these fields which are of major concern to both. These may originate in either one, with the overlap becoming evident in the other; the sources may be inside or outside of industry. An example of the former is presented in DR. MURPHY'S "Incidence of Typhoid Fever" (page 995) where an *industrial* water supply was at fault. The latter are shown in MR. SCHERER'S "Tuberculosis Case Finding" (page 992), and DR. GARDINER'S "Child Health Education" (page 1018) where the effects of conditions encountered in industry trace back to outside origins. . . . THE authors of the typhoid article comment: "A study was made of an entire industrial mill village population exposed to risk of water-borne typhoid fever. Stool specimens were obtained from all individuals living or working in the village, with a few exceptions. Evidence is presented as to frequency of mild as well as asymptomatic cases of typhoid infection in exposed individuals. Search of the literature has revealed a dearth of evidence of this nature. This point, therefore, should be of interest to all physicians since the evidence indicates that even during an epidemic at least one-third to one-half of all clinical infections escape recognition. Industrial physicians should be particularly interested, especially those connected with industries which own or operate their own water supply or sewage disposal systems. The 'horrible example' given here of the result of indifference to adequate sanitary supervision and control of water and sewage furnishes valuable lesson material. Even in this day and age industry must still maintain eternal vigilance against breaking the fundamental

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INDUSTRIAL MEDICINE, The Journal of Industrial Health, Occupational Diseases and Traumatic Surgery. Entered as second class mail matter August 28, 1941, at the Post Office at Chicago, Illinois, under the Act of March 3, 1879. Published on the fifth of each month by INDUSTRIAL MEDICINE PUBLISHING COMPANY, Chicago. STEPHEN G. HALOS, President; A. D. CLOUD, Publisher; C. O. SAPPINGTON, M.D., DR. P.H., Editor; CHARLES DRUECK, JR., Secretary and Treasurer; STEPHEN G. HALOS, Advertising and Business Manager. PUBLICATION, EDITORIAL and EXECUTIVE Offices: 605 North Michigan Avenue, Chicago, Illinois. Subscription $5.00 per year in the United States; $5.50 per year in Canada; $6.00 per year in other countries. Single copies 50 cents. Title Registered in United States Patent Office. Copyright, 1944, by Industrial Medicine Publishing Company, Chicago. Eastern Representative, H. GORDON HUNTER, 152 West Tenth Street, New York City, Telephone Watkins 9-1067.

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INDUSTRIAL MEDICINE is regularly indexed in "The Industrial Arts Index," which can be found in any Public Library.

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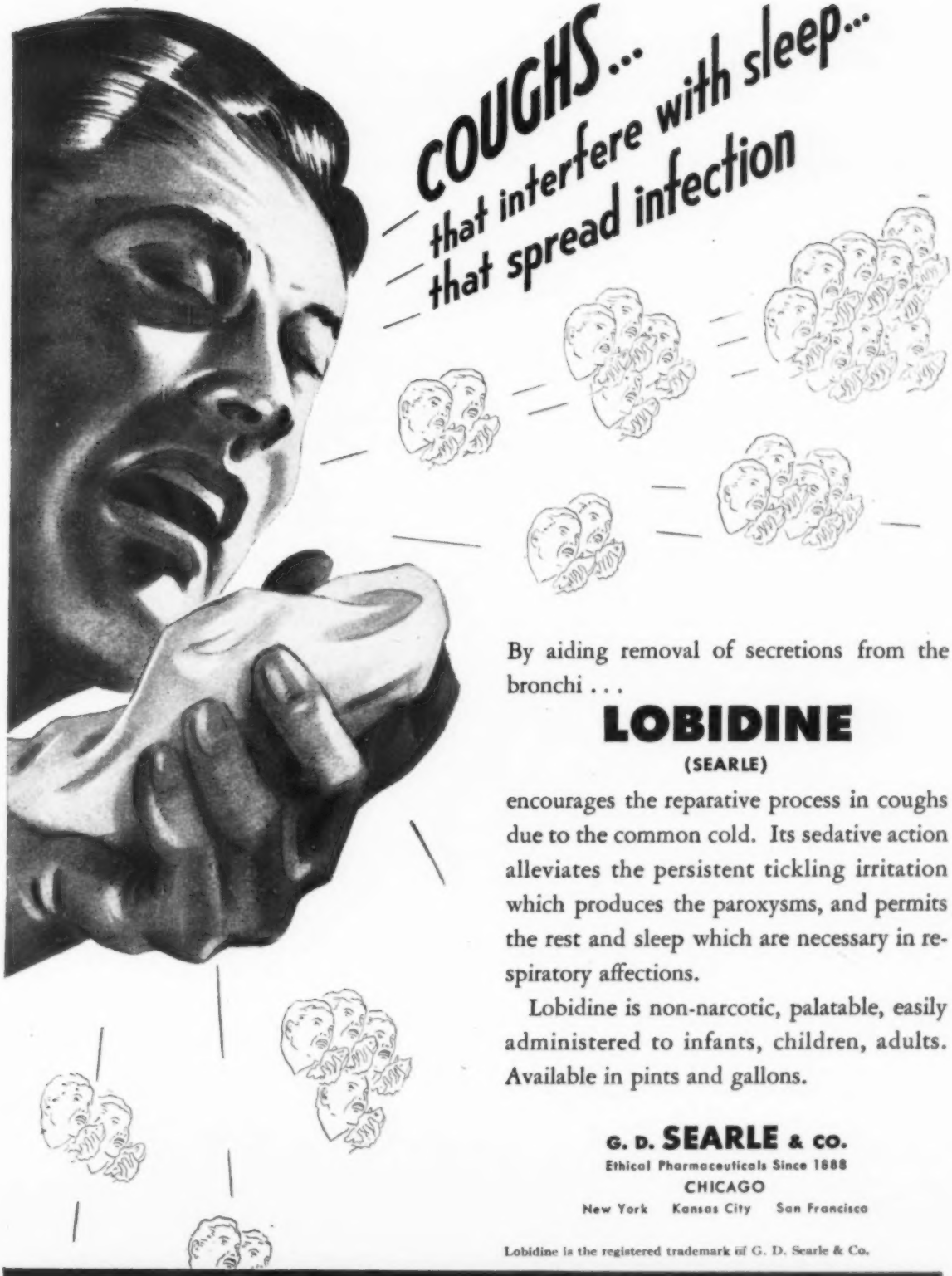

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April 24-25-26-27, 1945 Drake Hotel, Chicago

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laws of sanitation". . . . MR. SCHERER'S poster (page 993—10 x 14 inches in the original), illustrating his reference to "Publicity and health education material. . . . in the community generally and inside the plant," is particularly effective. On the general subject of the possibilities of *industrial* cognizance of tuberculosis as a matter of concern to both industrial medicine and public health, DR. PAUL D. CRIMM, director, Boehne Tuberculosis Hospital, Evansville, concludes an article on "The Mobile Unit as a Case-Finding Agency," in Indiana Health Board's *Monthly Bulletin* for November, as follows: ". . . . when management agrees to make mandatory an x-ray of the employee before he is hired, tuberculosis will raise still higher the white flag of surrender". . . . DR. GARDINER'S pungent words (page 1022): "Today's child is tomorrow's parent—but many of his lessons will be learned today and forgotten, refuted or pushed aside by tomorrow. . . . How can the parents be reached in greatest numbers and in willing-to-learn groups? Obviously in the place where they earn their livelihood, industry," bring into sharp relief the already conspicuous omission of health education in the "do-gooders'" grandiloquent plans for medical care. This is another of those invitations to thought concerning *prevention* which so very many habitually decline. . . . DR. MEEK and DR. MCCORD submit an interesting series of four industrial episodes in connection with a subject which, as to the phase presented, would seem to be in neither industrial medicine nor public health, while intruding upon both. The conditions here became industrial when they were forced upon the attention of the medical department, and thereupon they were investigated and disposed of in the manner characteristic of alert and competent industrial medical experts. In writing up their experiences DR. MEEK and DR. MCCORD have in mind the interest and information thereby given the field in general. They do not profess any special knowledge of entomology, nor do they wish to be thought of as entomologists. They merely offer what they learned in their investigations, for whatever it may be worth in similar situations elsewhere. From general information available, it may be remarked that similar situations elsewhere are by no means uncommon. Regarding the illustrations, no attempt was made to have them appear in proper relation to each other as to actual sizes of their subjects. Most are greatly enlarged, but the enlargements were made for effective presentation without any basis of comparison as to the dif-

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JOHN F. KENNEY, M.D., F.A.C.P., Pawtucket, Vice-President of the NEW ENGLAND CONFERENCE OF INDUSTRIAL PHYSICIANS, and President-Elect of the Rhode Island Medical Society for 1945, has been appointed Lecturer to give a course in "Medical Information" at the Post-Graduate School of Boston College, the course to be undertaken during the 1944-45 season at Providence, Rhode Island.

DR. EDWARD G. WHIPPLE, Rochester, has been appointed a special consultant to the New York State Department of Labor on dust diseases, notably silicosis, to succeed the late DR. JOHN J. LLOYD, Rochester. DR. WHIPPLE will serve with DRS. EDGAR MAYER and J. BURNS AMBERSON JR., New York, on the commission, which was established by the state legislature some years ago. He will have charge of the Buffalo-Rochester districts.

AT. ROSSANO, JR., M.S., has been lent by the U. S. Public Health Service to Colorado, where, as Director of the Division of Industrial Hygiene of the State Department of Public Health, he will revive the industrial hygiene activities which were interrupted two years ago when the Division's entire personnel became identified with the Armed Services. He will have the staff assistance of an industrial hygiene engineer, an industrial hygiene chemist, an industrial physician (part-time), and an industrial nursing consultant.

DR. WAYNE L. RITTER, Director, Division of Industrial Hygiene, Kentucky State Board of Health, is about to employ an industrial nurs-

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AN INDUSTRIAL Health Institute will be held at Fort Mason, California, from November 29 through March 7, under the auspices of San Francisco Port of Embarkation. Army and civilian leaders in the field of industrial medicine will speak at the Institute sessions, to be held each Wednesday evening through the 15-week period. The program was arranged by COLONEL H. S. VILLARS, Port Surgeon, and LT. COL. JEAN S. FELTON, Industrial Health Officer for the Port. It is intended primarily for nurses working in the Port health system, but any others interested will be welcome. The speakers in order of appearance, are MRS. E. M. WATSON, California State Health Service; COLONEL FELTON; DR. HAROLD KASTBERG, California State Health Service; FRANK STEAD, California State Health Service; DR. WILLIAM P. SHEPARD, Metropolitan Life Insurance Company; A. C. PAINTER, San Francisco V-D Clinic; WARREN HANNA, State Industrial Accident Commission; WILLIAM E. DIXON, U. S. Federal Employees Compensation Commission; DR. RODNEY BEARD, Pan-American Airways; DR. A. C. DICK, Consolidated Aircraft; MAJOR L. LIPSCHUTZ, Camp Stoneman; JOHN MOKE, Port Safety Division; MISS CHARLOTTE FERRY, California State Health Service; LT. A. BRADY and MRS. I. THORSON, Port Dispensary; and DR. CLIFFORD KUH, Permanente Foundation Hospital, Oakland, California. The Port Industrial Health program is making steady strides in reducing lost-time among the Port's thousands of civilian employees by preventing illness and by reducing severity of illnesses.

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Published under supervision of the Ways and Means Committee of the New York State Society of Industrial Medicine. Editorial office, F. E. REDMOND, Managing Editor, 361 Delaware Avenue, Buffalo, N. Y. Articles herein do not necessarily reflect the opinion or policy of this journal nor of the New York State Society of Industrial Medicine.

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GENERAL

THE first meeting of the Michigan Industrial Hygiene Society for the current season was held Wednesday, October 25, 1944, at 8:00 P.M., at the Rackham Educational Memorial Building, Detroit. DR. E. A. IRVIN, Medical Director, Cadillac Motor Car Company, spoke on "Physical Examinations in Job Placements," and MR. WM. BARCLAY, Assistant Director of Personnel Relations, Graham Paige Motor Car Company, on "The Proper Selection of Employees for Available Jobs."

FROM "The Newsvane", in *Medical Economics*, November, 1944: "Most New York hotels (132 of them) will contribute up to $900,000 a year to provide life, health, accident, and family hospitalization insurance for their 25,000 unionized employees. Basis: 3% of payrolls. . . . The UAW will insist on inclusion of its new maternity clause in future labor contracts. Clause says companies must give maternity leaves to women employees, take them back on doctors' O.K. . . . USPHS eyeing vast supply of Army-Navy medical equipment, with hopes of sending it, after the war, to rural hospitals as inducement for demobilized M.D.'s to relocate."

INCORPORATION papers for the Health Insurance Plan of Greater New York (*J.A.M.A.* May 13, p. 161), presented by Mayor Fiorello H. La Guardia, were filed August 31 with the state board of social welfare and the superintendent of insurance. If approved by these two agencies and by a justice of the state supreme court, the papers will establish a non-profit membership corporation to pay insurance as the Health Insurance Plan of Greater New York. The papers will be filed with the secretary of state when the necessary approvals are obtained, and the plan will then be ready to function. The roster of incorporators includes many prominent names in medicine, it was stated, but does not include the names of representatives of five county medical societies. The United Medical Service, Inc., organized under the guidance of the medical profession and approved by the Medical Society of the State of New York, is circularizing physicians with a letter asking them to participate in

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this plan, which was also set up this year (*J.A.M.A.*, May 27, p. 296). In its letter to the physicians the United Medical Service reported that it would pay all bills on the basis of physicians' fees comparable with those in workmen's compensation schedules for subscribers whose incomes are "less than an amount to be determined by your board of directors and approved by the council of the Medical Society of the State of New York. When the subscribers' incomes exceed this amount, physicians will be privileged to make a further charge to their patients in addition to the fees which they will receive from the company." The mayor's tentative proposal has envisioned coverage "to every one who earns up to $5,000 a year."

—*J.A.M.A.* news item.

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TO provide an organization, not for pecuniary profit, in which all agencies and societies, both medical and lay, concerned with the problems of industrial health can hold membership and can meet together in conference for the study, discussion and careful consideration of all industrial health problems and procedure; to engage in scientific research to determine the cause, nature, prevention and cure of diseases and injuries of occupations; to assist in establishing and supervising industrial health clinics to serve small industries; to establish and maintain hospitals which will furnish facilities for the care, treatment and study of occupational injuries and diseases; to make surveys of industrial medical services and recommendations for their improvement; to solicit, receive and administer funds for any purpose that will advance and/or improve industrial health; to establish undergraduate and/or post-graduate courses in industrial medicine and surgery and/or to cooperate with medical schools and industries in maintaining such courses; and to use all those means, which from time to time, may seem wise, for the advancement of industrial health

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Capitol X-Rays

A NEW venture in industrial health of the capitol was the mass chest x-ray examination for symptoms of tuberculosis of employees of International Business Machines, conducted here with members of the Public Health Commission of the Washington Board of Trade as witnesses. DR. ROY LYMAN SEXTON, chairman of the commission, commenting on the fact that this event was the first of its kind in Washington industry, said "The mass x-raying of these employees is a definite step forward in industrial medicine in the District of Columbia and marks the start of a new era in which industrial management is giving special consideration to the health of workers. It is to be hoped that other Washington concerns will realize the importance of this added health measure for the detection of tuberculosis and will arrange similar mass x-ray examinations."

—Washington Letter, *J.A.M.A.*, November 18, 1944.

Therapeutic Art

THE introduction of Soap Sculpture as a possible aid for the rehabilitation of mental cases has been tried out in a project sponsored by the Procter & Gamble Company. This work may suggest further and more intensive research on the therapeutic value of art, and the possible development of this technique in rehabilitation work for war veterans. The experiment was carried on by Ernest Bruce Haswell, sculptor, who outlines the work in a booklet, "The Mental Ward Becomes A Studio," published by Proctor & Gamble. This describes the teaching methods used, the problems faced, and the results of the work.

Seventh Congress

THE Seventh Annual Congress on Industrial Health, sponsored by the Council on Industrial Health of the American Medical Association, will be held at the Drake Hotel, Chicago, February 13-15, 1945.

A.M.A. to Philadelphia

THE Ninety-Fifth Annual Session of the American Medical Association will be held in Philadelphia June 18 to 22, 1945. This session was originally scheduled to be held in New York June 11 to 15, but because of untoward conditions growing out of the war emergency it was found that needed facilities would not be available in that city.

X-Ray Filmachine

GENERAL Electric X-Ray Corporation, of Chicago, has been appointed exclusive medical distributor of the Pako X-Ray Filmachine, which automatically processes and dries all standard medical sizes and types of x-ray film. G.E. X-Ray will handle the exclusive sale of the machine to the medical field in the United States as well as abroad. The equipment is manufactured by the Pako Corporation, Minneapolis. By eliminating the human factor in film processing, the machine makes it possible to obtain the maximum uniformity of the finished radiograph.

The Position He Left

A RETURNING veteran is entitled to his old job, even if he displaces a man of greater ability or more seniority, the legal department of the National Association of Manufacturers, said in the current issue of its law digest. "It seems relatively clear," the N. A. M. legal department held, "that an employer is given the choice of restoring a veteran to the position he left or of giving him another which is substantially equivalent, but he is given no choice as to whether the veteran shall be restored to his job. It is of no consequence under the law that the position is held by a person of greater abilities or more experience than the veteran or by a person having greater seniority than the veteran."

—*Chicago Tribune*, December 4, 1944.

Occupational Dermatitis

WHEN the Army and Navy "E" Award Committee was considering an eastern plant manufacturing atabrine for the award, it was found that the plant had a very high incidence of dermatitis—a condition relating to industrial health which through the efforts of the Division of Industrial Hygiene has been accepted by the Committee as a factor in making awards. At the request of the Award Committee

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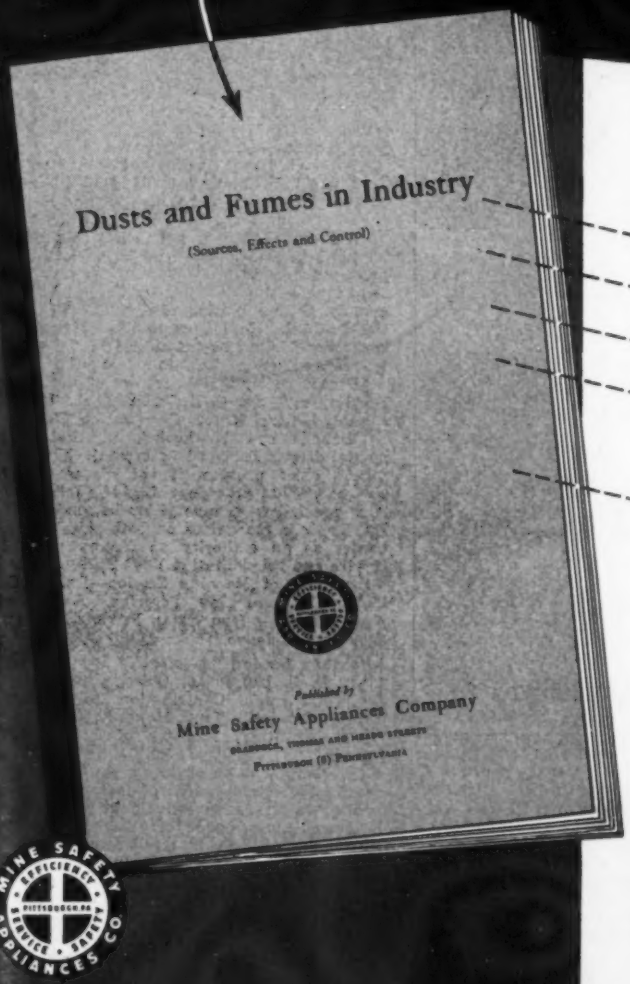

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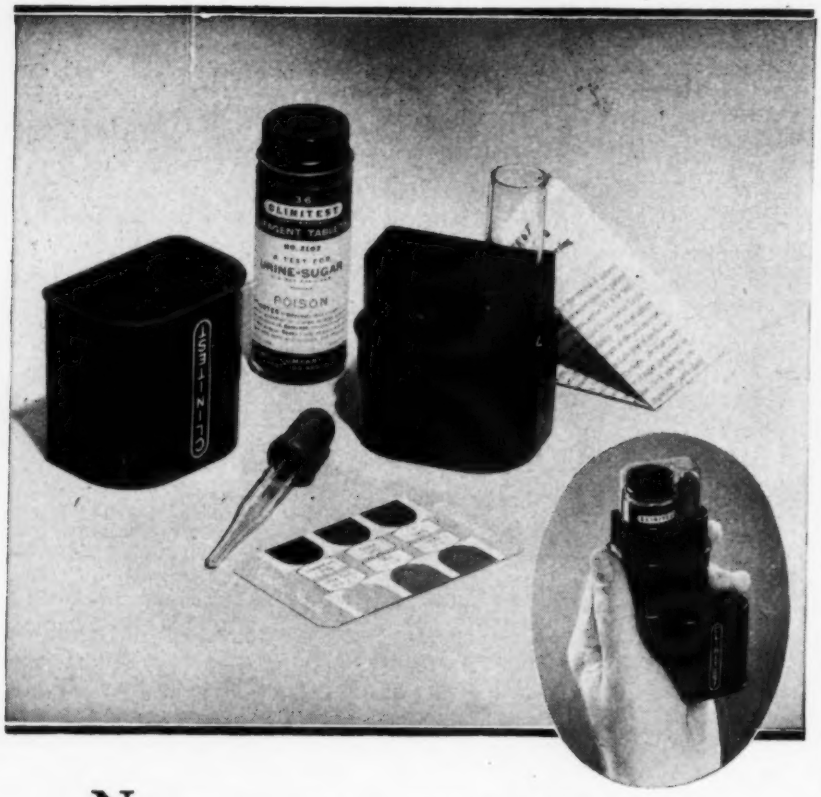

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the Division investigated this plant and found that no unusual amount of dermatitis attributable to atabrine was present, owing to the fact that the management had made an earnest effort to control the hazard. The Division, however, recommended that workers who contracted dermatitis be retained on the job until they have become thoroughly "hardened," that proper use be made of the safety equipment, and that use be made of certain cleansers and protective ointments.

—*Military Surgeon*, November, 1944.

Industrial Health Seminar

THE Medical Society of the County of Queens, Forest Hills, opened an industrial health seminar, November 2, as follows:

NOVEMBER 2: "Organization and Administration of an Industrial Medical Department"—DR. MARTIN I. HALL, Bristol, Connecticut.

November 6: "Welfare insurance with regard to Industrial Health"—DR. KINGSLEY ROBERTS, New York; and "Industrial Health from the Viewpoint of the Industrial Commission"—MR. LELAND W. HILL, assistant director, department of labor.

November 9: "Environmental Control of Occupational Diseases"—J. J. BLOOMFIELD, senior sanitary engineer, U. S. Public Health Service.

November 13: "Method of Plant Survey"—DR. NATHAN MILLMAN, Brooklyn, New York.

November 16: "Occupational Dermatoses"—LOUIS SCHWARTZ, medical director, U. S. Public Health Service.

November 20: "Toxic Effects of Heavy Metals"—DR. PAUL REZNIKOFF, New York; and "Toxic Effects of Gases, Fumes and Vapors,"—DR. ADELAIDE H. ROSS SMITH, New York.

November 23: "Safety in Industrial Medicine"—MR. GRAHAM COLE, safety engineer, Metropolitan Life Insurance Company.

November 27: Industrial health from the viewpoint of the following specialties: Psychiatry—DR. LYDIA G. GIBERSON, New York; Pathology—DR. ALFRED ANGRIST, Jamaica; Ophthalmology—DR. GEORGE FREIMAN, Brooklyn.

December 4: "Personnel"——MR. A. A. HENDRIX, personnel director of the Eastern Aircraft Division, General Motors Corporation, Linden, New Jersey; "Industrial Health from the Nurse's Viewpoint"—MISS F. RUTH KAHL, public health nursing consultant, U. S. Public Health Service; and "Industrial Health from the Dental Viewpoint"—LYMAN D. HEACOCK, senior dental surgeon, U. S. Public Health Service.

December 7: "Physical Restoration in the Federal-State Vocational Rehabilitation Program for Disabled Civilians"—DR. DEAN A. CLARK, Washington, D. C.; "Absenteeism"—WILLIAM M. GAFAFER, statistician, U. S. Public Health Service; and "Nutrition"—DR. ROBERT S. GOODHART, Forest Hills, New York.

December 11: "Occupational Diseases: Pneumonoconioses"—COL. A. J. LANZA, M.C.

Canada Conference

THE Second Annual Conference on Industrial Health sponsored by the Health League of Canada (Industrial Division) was held at Royal York Hotel, Toronto, Wednesday, December 6, 1944. The program, featuring Veterans' Rehabilitation, was as follows:

Morning Session

DR. CLARENCE M. HINCKS, General Director, National Committee for Mental Hygiene (Canada), presiding:

"Problems of the Discharged Servicemen"—CAPTAIN F. E. COBURN, Army Psychiatrist, Royal Canadian Army Medical Corps.

(Re-adjustment to civilian life is almost never easy for returned soldiers. What are their problems—and the symptoms? How did they arise? CAPTAIN COBURN, having had considerable experience with various types of discharged servicemen, brings an important message to plant executives concerned with the placement of veterans.)

"Physical Rehabilitation of Veterans"—LT.-COL. T. H. D. STORMS, Medical Director of the Clinic, Workmen's Compensation Board of Ontario.

(It's not what a man has lost, but what he has left, that determines his value to the prospective employer. LT.-COL. STORMS has concentrated for years on one vital objective, namely, the restoration of earning power to the disabled. He brings to his address the background of an expert skilled in the physical rehabilitation of the handicapped.)

"Procedure for the Placement of Returned Servicemen"—DR. C. D. SELBY, Medical Consultant, General Motors Corporation, Detroit.

(Wounds can be healed, physical and mental disabilities can be corrected. Management's chief problem is the placement of veterans. What procedure should be followed? How can follow-up supervision be conducted? DR. SELBY is recognized on both sides of the border as an authority on factory medical service and rehabilitation.)

Summary of Morning Session—DR. E. C. Holmblad, Managing Director, AMERICAN ASSOCIATION OF INDUSTRIAL PHYSICIANS AND SURGEONS, Chicago.

Afternoon Session

DR. E. C. HOLMBLAD, Chicago, presiding: "Labour's Contribution to Factory Health Service"—THE HONOURABLE HUMPHREY MITCHELL, Minister of Labour for Canada.

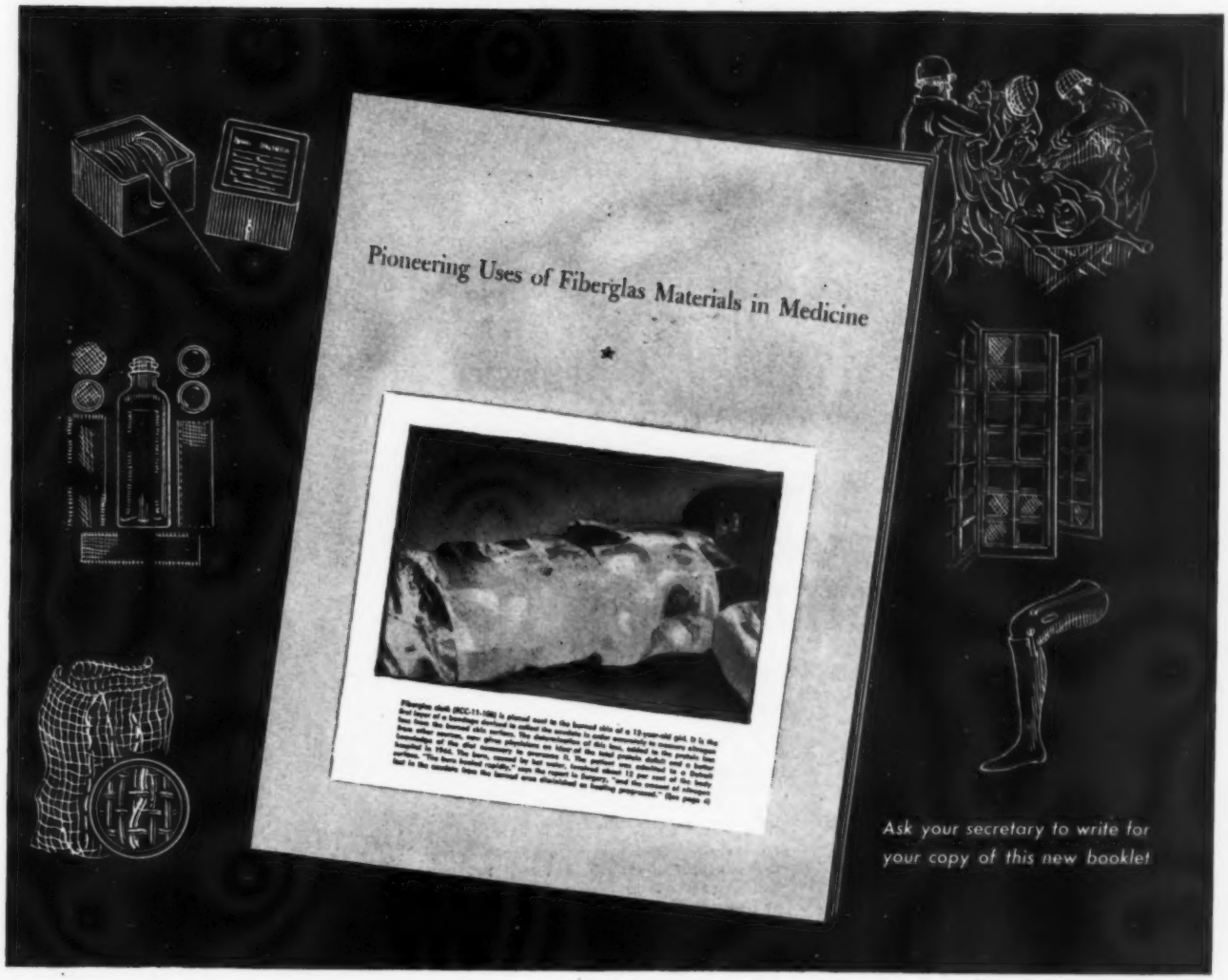
(Workers have an obvious right to participate in the establishment of factory medical service. In fact, progressive management has discovered the success of any health program depends on the closest cooperation between employers and employees. THE HONOURABLE HUMPHREY MITCHELL will emphasize this need and indicate an approach to the maintenance of labour-management teamwork.)

"No Plant is too Small for a Health Program"—Round Table Discussion—Members of panel: DR. F. R. GRIFFIN, Physician, Canada Metal Co. Ltd., Toronto; H. G. VAIL, President, Vails Limited, Ottawa; R. C. BATSON, General Manager, Wm. Paterson Limited, Brantford; W. R. BURNIE, General Manager, Essex Wire Corporation, Windsor; MISS M. A. WATT, Industrial Nurse, Tuckett Tobacco Co. Ltd., Hamilton.

(The following are typical questions to be discussed by the panel: What are the objectives of factory health service? What personnel is required? What are the qualifications of the doctor? And of the nurse? What is the cost of medical supervision? How can a small plant handle veteran placement?)

"What Is Your Next Step?"—DR. J. G. CUNNINGHAM, Director, Industrial Hygiene Division, Ontario Department of Health.

(After an employer has decided to make the benefits of medical supervision available to his employees, what next? What is the procedure for staring and operating a factory health program? DR. CUNNINGHAM speaks with authority on this subject and will outline the technical help and consulta-



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His preference for wet dressings solution is **Domeboro Tabs** ("widely used in industry", particularly by Parkes[2] at Curtiss Wright for cutting-oil dermatitis)—because it is "a convenient tablet which, when dissolved in water, releases a *lead-free aluminum acetate in appropriate dilution,*" with a substantial percentage of boric acid.

The *crude coal-tar paste* used at New York University, according to Combes, "is manufactured commercially under the name **Daxalan**"—which has been found *superior to distillates, filtrates and pastes containing liquor picis carbonis.*

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With tissue repair under way, and only erythema remaining, the use of **Domeboro Ointment** (each ounce of which, in a special hydrophilic base, possesses the therapeutic action of one Domeboro Tab diluted in a pint of water), permits a quicker return to work, while healing is promoted by its efficient topical action.

(1) Combes, F. C.: Indus. Med., July, 1944.
(2) Parkes, Morey: Indus. Med., January, 1944.

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tion obtainable from the Industrial Hygiene Division of the Ontario Health Department.)

Chairman's Summary of Afternoon Session. Adjournment.

In-Plant Feeding

PEARL HARBOR transformed the feeding of workers in factories from a minor-league business into a billion dollar industry. Confronted with a huge increase in workers, factory managements hastily began installing cafeterias or fancy snack carts. Sometimes they decided to run the feeding themselves, other times turned it over to outside caterers. A good indication of how far this has progressed or may be expected to is supplied in two surveys recently made by the Dixie Cup Company and a government agency, the Office of Distribution of the War Food Administration. Dixie, which naturally has a big stake in factory feeding because it produces paper cups and other paper products, assigned three members of its market research staff and 18 salesmen to do the research. They interviewed the plant feeding manager and a top company official in 105 of the 4,500 U. S. manufacturing plants which employed 200 or more workers and supplied in-plant feeding. They concentrated on users of Dixie products. In the survey, released especially to *Tide*, Dixie reported on the extent to which different services were used: 73% had cafeterias; 44%, canteens; and 41%, mobile units. From the answers of company officials, Dixie broke down the advantages and disadvantages of the various methods. Cafeterias serve complete balanced meals, wide variety of foods, provide a change of scene and a better chance for relaxation. But they cost more to run than canteens and mobile units, encourage employees to dawdle over their meals, in sprawling industries are often not readily accessible. Snack bars or lunch counters, spotted strategically through the plant, offer speed and efficiency, lower operating costs with a minimum of capital, and take up little floor space. Their disadvantages: more limited menus than cafeterias, no place for workers to sit, little provision for personal cleanliness while eating. Mobile units, either canteens on wheels or sub-cafeterias, carry food to the workers. In large plants where operations are scattered, they are fast, efficient and permit short lunch periods, require little floor space. But they do not give the workers a change of surrounding or a place to sit, cannot be used in plants producing toxic materials. Fast disappearing from the scene, Dixie said, is the lunch box sold at the gate. And butcher boys hawking food through the plant are used chiefly for relief periods and in such places as powder factories and ordnance depots where the other systems are unsatisfactory. The growth in use of caterers has been extremely rapid. In 1941, for instance, 10 of the companies surveyed did the job themselves, only two used caterers. Last year 42 companies reported doing their own feeding, 41 turned the whole job over to caterers. War Food's survey covered much wider territory, but did not include personal opinions. In two batches, the WFA sent questionnaires to 2,416 manufacturing companies selected from War Manpower Commission records, got an 85% return. WFA found that half the manufacturing plants provide some type of food service for workers. The situation was better in the larger plants: in-plant feeding was found in only 28% of the plants employing fewer than 250 workers; 80%, employing 1,000 to 2,449; and 91%, more than 2,500 workers. From another angle, WFA found that four out of five workers are employed in plants with factory feeding. But only 40% get to use these facilities, which are usually operating to the hilt. About half the workers still bring packed lunches from home and others patronize nearby commercial eating places or go home for lunch. Of the plants with facilities, WFA reported that 45% had cafeterias; 55%, lunch counters, canteens, hawkers and other methods. Looking to the future, WFA said that about 13% of the plants were planning new installations or expansion of existing food services. Again larger plants showed more interest. Cafeterias predominated in the plans: they will be used in 67% of the expansion, 63% of the new facilities. Undoubtedly there is room for enormous growth in the field. WFA hopes eventually that 60% of the workers—instead of the current 40%—will have access to in-plant feedings. Besides shooting at greater coverage, WFA observed that many of the existing facilities are not especially suited to workers' needs.

—*Tide*, November 1, 1944.

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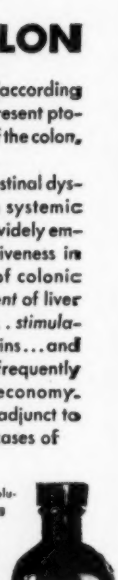
To combat such gastro-intestinal dysfunction through thorough systemic detergence Occy-Crystine is widely employed because of its effectiveness in promoting: *prompt relief* of colonic stasis . . . *marked improvement* of liver and gallbladder functions . . . *stimulation* of renal clearance of toxins . . . and *release of colloidal sulfur*, so frequently deficient in the arthritic economy. Include Occy-Crystine as an adjunct to treatment of your next few cases of arthritis.

FORMULA: Occy-Crystine is a hypertonic solution of pH 8.4, made up of the following active ingredients: Sodium thiosulfate, and magnesium sulfate, to which the sulfates of potassium and calcium are added in small amounts, contributing to the maintenance of solubility.



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THE MIND OF THE INJURED MAN

A Study of Trauma and the Nervous System, with Particular Reference to Neuroses Associated with Injury

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"The reading of this manuscript has been an interesting and informing experience, which I hope will be shared by many. This is not just a book, it's a very good book!" —Foster Kennedy. Cloth, 6x9, 270 pages, 28 illustrations, bibliography, index. Price $4.00.

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238 pages; 30 illustrations

Sixty per cent of the adult population is said to be afflicted with pruritus perinei and yet the bedside physician does not know how to handle it. This important book is the first comprehensive monograph on this complex and distressing affliction. Published in 1938 at $5.00—Now..$3.00

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COMMENT and OPINION

DR. VICTOR G. HEISER: "Industrial medicine is no longer regarded as a forlorn urchin on a dead-end street—he's been taken in, educated, and the adoption papers are in order."

Discovery

MEN, on the average, lost two days less in war work in 1943 from illness or injury than did women, the OWI reported today. The average man was away from industry 11 days.

—*Chicago Daily News*, November 6, 1944.

Let's See

VISIT the first-aid room as soon as anything goes wrong with your eyes. If you get a speck in your eye, or develop a crop of sties, let the nurse take a look at it. If she can't help you, she'll turn you over to the doctor. Don't let a "shop-prof" fool with your eyes. Knives, screw drivers, toothpicks, matches, tweezers, or files were not made to remove objects from your eyes. Burns of all kinds should be treated by the nurse or plant physician. The best first-aid for acids or other dangerous chemicals in the eyes is to wash them thoroughly with clean water.

—From "Let's See," Workers' Health Series, No. 12, Federal Security Agency.

Dirty Dishes

POORLY washed dishes in restaurants are spreading disease. So states John Andrews of the U. S. Public Health Service. He also says this type of disease-spreading is increasing daily. Mr. Andrews says dishes should be washed in water heated to a temperature of 110 to 120°. After the washing, they should be dunked in water heated to 170°. Call this to the attention of the manager of your favorite restaurant or fountain lunch. Then get a thermometer and check on him the next day.

—E. V. DURLING, in "On the Side," *Chicago Herald-American*, November 27.

Control of Nurses

THE postwar industrial physician will have to exercise tighter control of his plant nurses and not permit the continuance of inadequate supervision, brought about by war conditions. This is the recommendation of the committee on industrial health of the Ohio State Medical Association, which declared recently that the most satisfactory control method is that which "requires the nurse to carry on her duties under the written standing orders of a physician." It recommends that every industrial physician work for the establishment of such a policy. In suggesting that the "Standing Orders for Nurses," compiled by the Council on Industrial Health of the American Medical Association, be used as a general guide, the committee said such orders should nevertheless be "tailored to fit the individual situation in each plant."

—*Medical Economics*, November, 1944.

Another Hazard

WORKERS allergic to boogie woogie music played in industrial plants are among wartime psychiatric casualties according to Dr. Robert V. Seliger, a Baltimore psychiatrist. Reporting on a series of 71 war workers treated for nervous conditions at Johns Hopkins Hospital, Dr. Seliger told the Southern Medical Association: "Individuals who in peacetime would themselves choose different employment or who would seldom be hired by industry could not adjust to their jobs and needed to be shifted to different work. Some men found it nearly impossible to work with large groups and in large plants constantly surrounded by people and dinned at by noise of machinery and of boogie woogie music over the loud speakers."

—*Chicago Daily News*, November 16, 1944.

40% Misfits

UNHAPPY in your job? Maybe there's a good reason—if you belong to the 40% of Americans who are "occupational misfits." This bombshell figure was tossed by Dr. Samuel N. Stevens, president of Grinnell College and vice-president of the Personnel Institute, which has tested some 12,000 job applicants for business and industry. Women and professional people show up worst in the institute's aptitude scale, Dr. Stevens told the National Standard Parts Association conference at the Hotel Sherman. "Although women have about the same abilities as men," he said, "their general temperament fits them best for homemaking. We're very old fashioned in this respect. Considerably more than half of all professional people—especially doctors, lawyers and teachers—are unqualified for their vocations. The percentage of misfits in the professions run much higher than in other occupations," he said, "chiefly because so many persons enter them for the prestige value rather than for any genuine interest or ability." Women teachers are often mal-adjusted to their work, Dr. Stevens pointed out—confirming what countless generations of small fry have felt. "There should be more male teachers, even in the lower grades. Too many women teachers come to hate their pupils, for the psychological reason that they have no children of their own. They should marry and have families to find real happiness." One third of all men are still looking for "jobs with a future" at the age of 40, he dis-

closed, calling this "a shocking waste of our most precious natural resource—human energy." Only 30% of the public is in the right occupation, he continued. "Our greatest postwar need is for a comprehensive vocational guidance program beginning in the high schools and embracing every business and profession. Psychological happiness as well as economic well-being depend upon this."

—SYDNEY J. HARRIS, in *Chicago Daily News.*

Bureaucrat's Dream

HUMANITARIAN idealism often outstrips common sense. Such is the case with plans for compulsory health insurance. Perhaps the most startling revelation contained in the Northwestern University report on compulsory health insurance, is the extent to which bureaucracy would expand under a government health insurance program. As the report observes, there are between 50 and 55 million gainfully employed persons in the United States at the present time. This, with members of families and dependents, would swell the number of potential beneficiaries to over 100 million, depending, of course, upon the type of coverage embraced in the system. Approximately 50,000,000 cases would receive medical attention each year in the United States. All of these cases would have to go through the process of certification, filing, inspection, payment, complaints, and adjustments. If an adequate staff and organization were provided, it would mean an army of government employees. In the words of the report: "To practical politicians . . . such an expansion in the number of Federal employees means primarily one thing namely, ' patronage'; patronage for whatever political organization may happen to be in power and a patronage that would surpass anything that politicians have dreamed of in the past." Congress is struggling to curb bureaucracy, well knowing that unless it is curbed the American form of government will be destroyed. A broad, compulsory health insurance program would make the bureaucratic menace virtually uncontrollable.

—*Weekly Bulletin,* St. Louis Medical Society, November 7, 1944.

Logic vs. Intuition

IF NECESSITY is the mother of invention, intuition is the father, according to Yale's Elliott Dunlap Smith. He suggests that education stressing basic principles and not memorized formulas would permit a fresher approach to problems and would thereby facilitate invention. To be useful the inventor must be intuitively resourceful as well as scientifically sound, comments Professor Smith in his article, "Some Psychological Factors Favoring Industrial Inventiveness," which appeared recently in *Mechanical Engineering.*

SKIN IRRITATION CASES CUT FROM 12% TO LESS THAN 1%

*within 60 days**

*From the case history records of an industrial plant employing 2000, using ELEVEN THIRTY-TWO Protective Cream and Foaming Oil Cleanser on a regular, planned basis. The steps employed are simple:

1 *Workers apply* ELEVEN THIRTY-TWO *Protective Cream before starting work*—remove it at meal time—re-apply when work is resumed. This cream has a *lanolin base,* compounded in such a way that when applied to the skin it will resist water-soluble irritants, petroleum solvents, acids and other known irritants.

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A GUARANTEE—based on your experience. Best proof of the value of these dermatitis preventives is your own experience. You can get this experience at no cost by using the Kolar Laboratories' *trial offer.* We will ship prepaid six one-pound jars of ELEVEN THIRTY-TWO Protective Cream, and (one gallon) of Foaming Oil Cleanser invoicing in the regular manner, but with the distinct understanding that this invoice is not to be paid unless the preparations measure up to your expectations in every way.

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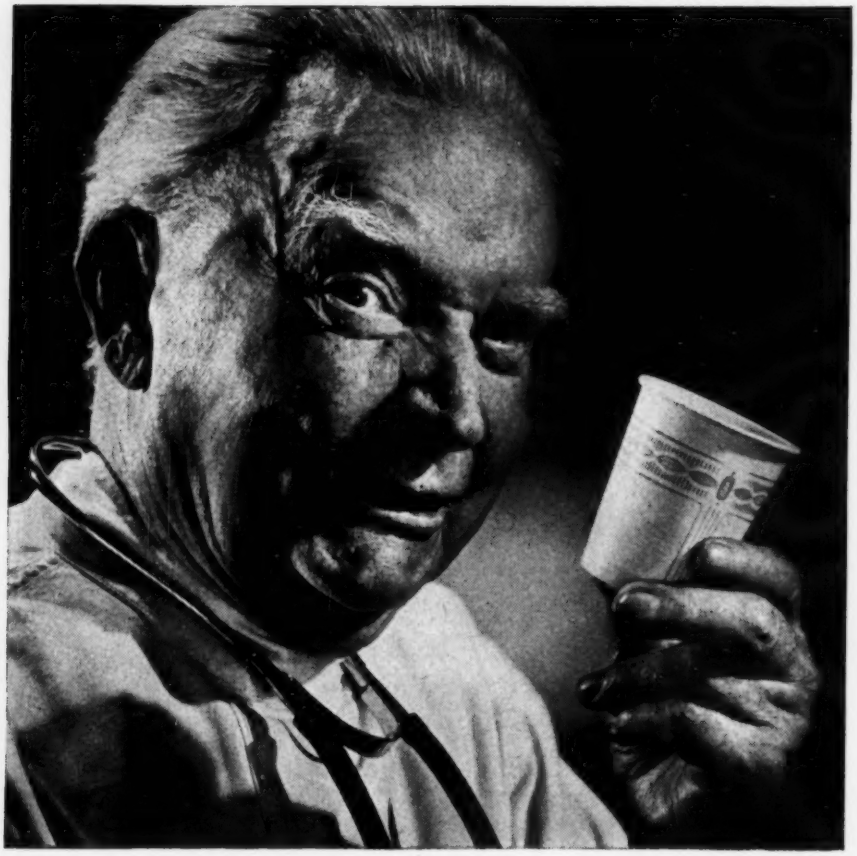

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Of course Dixie Cups won't stop colds once started, but they *can* help prevent their being passed along to others. A crisp, clean Dixie Cup or Vortex Cup breaks the possible chain of infection resulting from mouth contact where the lips of others have touched.

Nowhere is this fact more important than in today's industrial plants where man-hours must be rigidly conserved, and epidemics of illness constantly combatted.

Dixie Cups at water coolers are proving an effective weapon in defending the health of workers. And in the cafeterias the time they save in dishwashing gives them added importance when help is scarce and inexperienced.

CAUTION: Dixie Cups are being so widely used by the armed forces and war plants that there just aren't enough to meet the demand on certain sizes. So if you cannot get the cups you want, we hope you'll understand.

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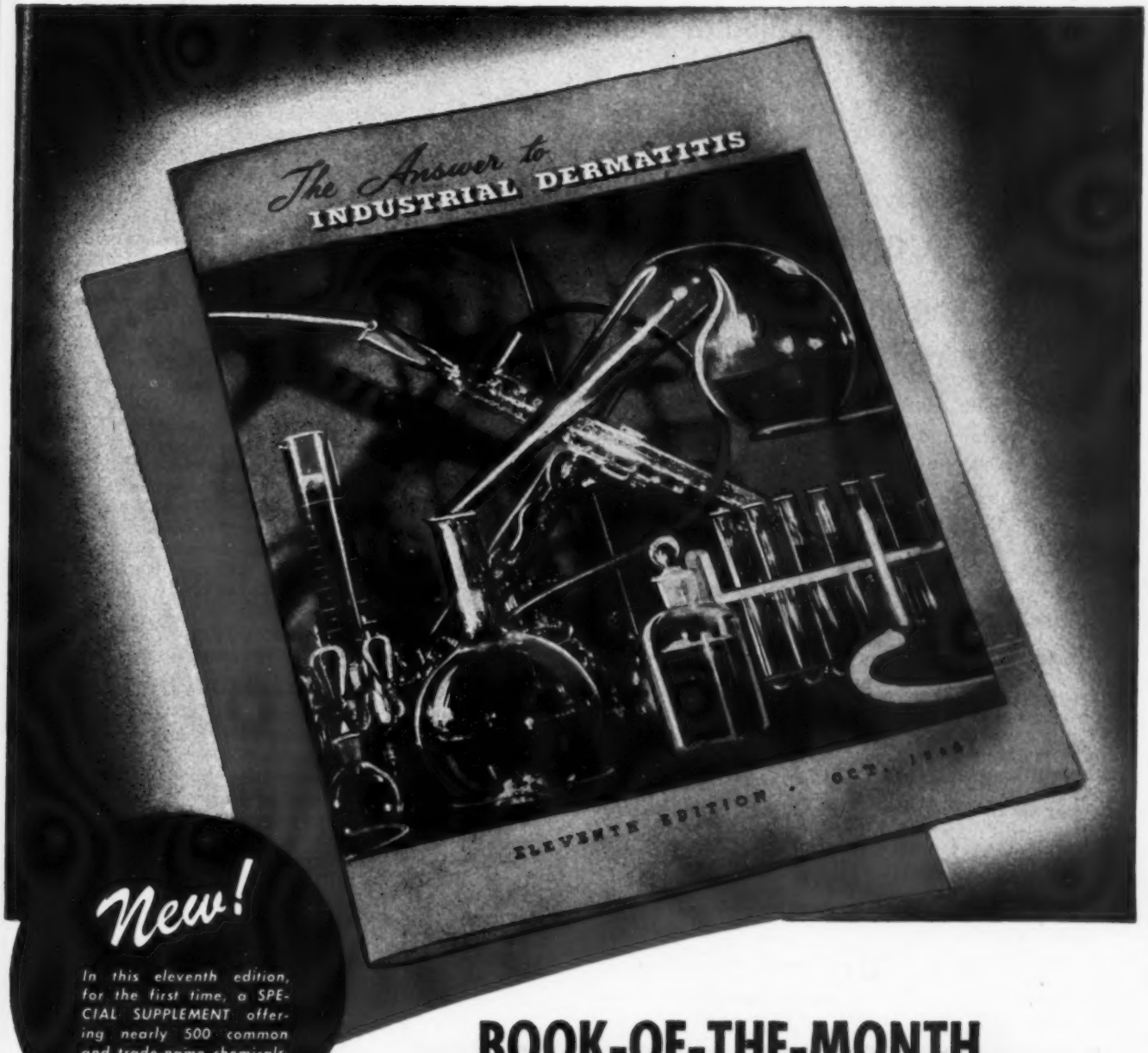
DRINKING CUPS AND FOOD CONTAINERS

Obstructing both intuition and inventiveness is slow, factual education forcing the mind through memorized formulas back into the past. If the young student were referred to basic principles for problem solutions, the consequent development of understanding would prepare him for inventiveness. The logic back of the textbook formulae would become part of the student's mental equipment and bring him closer to thought processes leading to inventive insight. . . . Despite a tendency to consider intuition of a lower order than logical thought, it is a combination of intuition and logic that makes a good inventor. The logical thinker, proceeding step-by-step, can put his ideas into words, while the intuitive thinker comes upon his solution through sudden insight into the problem as a whole and cannot explain his thought process. Such scientific intuition resembles the manner in which familiar objects are recognized by a fragment or at a glance. It is a common experience to attempt to identify a song from a snatch of melody until after possibly hours the full tune suddenly emerges. Similarly the scientist, pondering his problem, is tense until a "flash" of genius makes a meaningless fragment the significant clue to his problem. Somewhat comparable to Professor Smith's contrast between logical and intuitive thought are the methods of research occasionally described respectively as "German" and "American." The "German" method involves a methodical mass attack on all possible angles of a problem; it is well exemplified by the I. G. Farbenindustrie research leading to the antimalarial, atabrine, during which nearly 100 Ph.D.'s synthesized and tested tens of thousands of new compounds in the hope, eventually justified, of finding a synthetic quinine substitute. By contrast, the American advances in the sulfonamide drugs involved no such swarming of talent in one organization; they were worked out by relatively few men proceeding on assumptions based on a thorough background in the subject. Similarly, an American achieved the synthesis of quinine within 14 months after conceiving a new idea, although others, notably the Germans, had attempted this synthesis for many decades before abandoning the effort and searching for another antimalarial that could be made synthetically. To succeed the inventor must often forego logic in search of a more generous interpretation of available clues. Intuitive thought lifts logic from a rut to a more direct route. If both logic and intuitive "flash" fail, the scientist should rest through diverting relaxation or work on unrelated problems. Given the logical groundwork, a resting mind often provides the necessary insight. Professor Smith adds that the inventive scien-



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- **SPEED** — Less than 1 second per 1 cc. of blood — under normal conditions.
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tist needs determination, as well as faith that the problem can be solved and that he is the man to solve it.
—From "And Now Psychosynthesis," in *Industrial Bulletin* of ARTHUR D. LITTLE, INC., November, 1944.

DDT

DR. PAUL A. NEAL, chief of the research section of the Division of Industrial Hygiene of the Public Health Service, Federal Security Agency, speaking at a meeting of the National Museum Entomological Society of Washington, November 2, reported that, in spite of its inherent toxicity, DDT in the desired insecticidal concentrations in air is of such low order that it will not cause injurious effects in humans. Studies at the Industrial Hygiene Research Laboratory of the National Institute of Health in Bethesda, showed that DDT in concentrations up to 10% in inert powders, for dusting clothes, as in the extermination of lice, offers no serious health consequences. The use of a 1% DDT deobase mist mixture had no toxic effect on rabbits, and it should be safe to use as a fly spray. In a clinical and laboratory study of three men who had had several months of continuous occupational exposure to DDT in its various forms as an insecticide, an evaluation of results failed to indicate any definite toxic effects from exposure to DDT. Inhalation studies of the toxicity and potential dangers of aerosols, dusting powders and mists containing DDT had been made at the Industrial Hygiene Laboratory on mice, rats, guinea pigs, dogs, monkeys and human beings. These experiments revealed a marked difference in the susceptibility of different animal species to DDT. Mice were more susceptible than rats, guinea pigs and rabbits, with monkeys and dogs, most resistant. Only when relatively large doses were ingested or absorbed through the skin did toxic reactions set in, such as tremors, "jumpiness" as in strychnine poisoning, convulsions with death, fatty degeneration of the liver and kidneys or changes in the nerve structure. In experiments with dogs, daily insufflation of 100 milligrams of pure DDT per kilogram of the weight of the animal caused definite signs of poisoning in only one out of the three animals tested, after a period of 18 days. Although this study deals only with the appraisal of the potential dangers of DDT when inhaled as an aerosol, dust, or mist, Dr. Neal pointed out that massive doses either by mouth or by skin absorption will cause toxic reactions. Heavy contamination of foods should be avoided. Despite the inherent toxicity, the use of DDT in 1% to 5% solutions in 10% cyclohexanone with 85 to 95% Freon, as aerosol, should offer no serious health hazards when used as an insecticide.

Chest X-Ray Surveys

THE screening of large numbers of apparently healthy individuals by means of chest x-ray has again proved to be an invaluable supplementary procedure in the detection of new cases of tuberculosis according to a report by the Division of Tuberculosis covering the period 1942 to September 1, 1944. X-ray surveys of workers in 196 plants or factories representing manufacturing and service industries in practically all sections of the state have resulted in the discovery of six cases for every 1000 employees examined. Altogether 82,666 persons were x-rayed and 521 showed x-ray shadows which were interpreted as indicating clinically significant tuberculosis of the lungs. Approximately two-thirds of the total number of x-ray films, 54,003 were interpreted by members of the division staff, about half, 27,880, during the first eight months of 1914. When pre-induction chest x-rays of candidates for the armed forces became a routine procedure at the nation's induction stations, the largest scale mass x-ray survey of a special population group in this country was launched. This project stimulated expansion of mass surveys among other civilian population groups by public or volunteer health agencies. The value of such surveys as a practical means for finding hitherto unknown cases of tuberculosis among apparently healthy people had already been demonstrated and was generally accepted. The impetus of the war and the tremendous industrial expansion served to demonstrate their practicability and point up the necessity for inaugurating

No. 1 of a series on how vitamins work in industry

Workers wearing away?

The proverbial drop wearing away the stone has nothing, perhaps, on the insidious force that may well be wearing away the efficiency of 3 out of 4 workers in American industry.

What about this PROGRESSIVE IMPAIRMENT?

Threat to industrial productivity

Progressive Impairment contrasts with the obvious limitations of a Static Impairment in which the worker lacks, for instance, a limb or an eye.

Progressive Impairment presents insidious dangers through the gradual undermining of the worker's health, thus threatening his capacity to continue functioning at peak efficiency.

The threat that Progressive Impairment holds for 3 out of 4 workers may well be attributed to inadequate diets—nutritional deficiency.

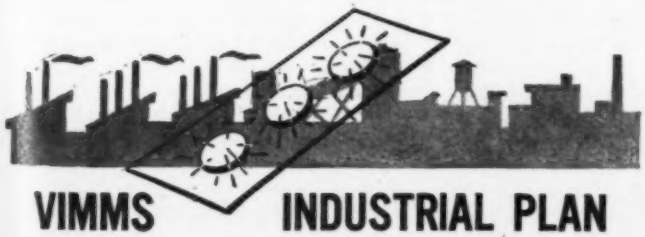
Potential saboteur of the worker's health, nutritional deficiency develops so stealthily that, according to a prominent medical authority, the victim may not be conscious of sufficient cause to consult a doctor. Enervating in its effects, nutritional deficiency robs the individual of spirit and strength. Morale is undermined, the will to achieve, drained. Sleep becomes less restful, disease more liable to gain a foothold as resistance falls lower and lower.

That such inadequate diets *are* prevalent is the conclusion of the National Research Council in its recent bulletin #109:

"All the evidence from numerous surveys is, without exception, in complete agreement that inadequate diets are widespread in the nation."

Department of Agriculture surveys among employed wage earners and clerical workers throughout the country have shown that 3 out of 4 were not selecting enough of the right foods to insure good nutrition . . . were subsisting on diets which invited vitamin-mineral deficiencies.

There is ample reason then, to believe this "3-out-of-4" condition may be reflected within the ranks of your own company.



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Dietary supplementation

Broadly accepted by progressive industries as one easily initiated and inexpensive help toward solving the problem is the Vimms Industrial Plan.

Under this Plan the vitamin-mineral supplement Vimms is distributed daily to employees . . . to supply them with all the vitamins recognized as essential in the diet, *plus* all the minerals commonly lacking.

Up to 90% of the workers in plants using the Vimms program enthusiastically participate in this Plan for vitamin-mineral supplementation.

For example, in a large manufacturing firm, employees taking Vimms regularly returned questionnaires revealing the following figures:

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56% appetites improved

57% less tired at the end of the day

52% slept better

51% fewer colds

56% more pep

Results reported in other companies are equally gratifying. The Vimms Industrial Plan not only yields numerous present benefits but also serves to guard against those prolonged nutritional deficiencies which may even affect the workers' later years.

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The Vimms Industrial Plan is carefully worked out between you and our trained industrial consultant, in order to set up a distribution plan custom-tailored to your own individual system of operations.

Distribution trays, speakers for employees' meetings and persuasive posters and payroll stuffers are part of the services and material provided free with the plan.

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50 Memorial Drive, Cambridge 39, Mass.
Gentlemen: Yes, I'd like to know more about what the VIMMS Industrial Program can do for my company.

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BEEF LIVER Concentrated from ½ ounce
IRON As much as in one third lb. of molasses
THIAMINE As much as in 12½ oz. of white bread
RIBOFLAVIN As much as in 4½ yolks of eggs
NICOTINIC ACID As much as in 1 quart of milk
All of these protective elements, these dietary riches, are present in one small caplet of...
LIRON-B
Of course Liron-B Caplets are effective in secondary anemia and malnutrition—how convenient to give, too! Supplied in bottles of 100, 500, and 1000.
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and expanding such programs. In 1942, chest x-ray surveys of industrial workers in upstate localities were begun; these were promoted usually by the district health officers and financed by community, public or volunteer health organizations. The x-ray films were interpreted by tuberculosis specialists associated with the local health department or tuberculosis hospital. Where the films could not be interpreted locally because adequately trained specialists were not available or the organization concerned was already understaffed and overworked, the Division of Tuberculosis offered the services of its staff in interpreting the films, summarizing the results, checking the files for previously reported cases and transmitting interpretations, recommendations, and tabulations to those individuals or agencies qualified to receive them. Tuberculosis is an infectious contagious disease. Fundamentally its control depends upon the control of the tuberculosis patient who may spread the disease to those about him. For that purpose it is vital to know who has tuberculosis and to employ means to find the unknown cases in the community. The first step in finding new cases is to examine those individuals with whom the known tuberculosis patient was closely associated, especially in the home. The next is the examination of individuals who complain of symptoms referrable to the lungs. Even under ideal conditions, where these two steps are carried out with maximum efficiency, there still remain in the community large numbers of unknown cases of tuberculosis. These hidden cases for the most part have no characteristic symptoms or signs and, in the vast majority, only an x-ray of the lungs will disclose the disease. Recent advances in x-ray equipment and techniques, especially the so-called miniature film method, have made possible the x-raying of large groups of individuals for the purpose of finding these undiscovered cases of tuberculosis. As a method of tuberculosis case-finding, the screening of large groups of apparently healthy individuals by means of chest x-rays is here to stay. It should not replace the recognized routine methods of case-finding by means of examination of individuals who have been in close association with tuberculosis patients or who have symptoms referrable to the lungs. Rather, it should serve as an excellent auxiliary method for the discovery of new cases and in that way provide to health departments many additional opportunities for the promotion of their tuberculosis control programs. Lack of funds for additional personnel, equipment, and material has prevented the Division of Tuberculosis from participating more actively in this phase of the state-wide tuberculosis control program. It is hoped that in the near future some of these deficiencies will be remedied and that the Division will be in a position to offer a more direct and complete service in promoting and, in large part, conducting a greatly expanded mass x-ray program.

—WILLIAM SIEGAL, M.D., in New York State Department of Health *Health News*, November 13.

Medical Certification

IN RECENT years medical certificates have been required for fuel and food rationing, public health disease prevention programs, food handler control, marriage laws, school regulations and sickness insurance. The good name of the medical profession is sometimes jeopardized by too lenient compliance with appeals for certificates from patients who often have little or no real basis for requesting them. This problem is now especially concerned in present efforts to use limited manpower to its fullest extent in war industries. Production of munitions would be far from completed even if Germany should capitulate this month. According to War Department announcements, production of heavy trucks, large shells, bombs, rockets, smokeless powder, heavy duty tires, superbombers and large artillery is behind schedule for 1944. These activities must be continued for many months to come if urgent orders from overseas are to be met. The major problem in the production of these critical items is lack of manpower. Lack of labor reserves in many communities, excessive absenteeism and a high rate of labor termination are the controlling factors in producing enough munitions on time. Certain ordnance plants have reported absenteeism amounting to 20 days annually per man and an annual labor turnover of 100%. Many of these absentees and job terminators can be replaced only

Serious BURNS

SUCCESSFULLY TREATED BY PRESSURE DRESSINGS AND

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Illustrating a compression Foille dressing upon an extensive second degree burn of the left thigh and leg.

By consistently avoiding sepsis, quickly controlling pain and stimulating epithelization and granulation, Foille provides marked "*added advantages*" in pressure dressing treatment of burns.

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Right thumb shortly after accidental amputation by a buzz-saw. Metacarpal divided at its distal two-thirds.

27th day after accident and subsequent dressings with Nason's VITAGUENT (Cod Liver Oil Ointment).

A New Advance in

WOUND *and* **BURN** *Therapy*

Commenting on the efficacy of cod liver oil as a remarkable aid in the healing of wounded and burned tissues, Dr. Parker C. Hardin, M.D., F.A.C.S., writes*: "The cod liver oil method is . . . a complete plan whereby all possible tissue is preserved, infection minimized, granulation stimulated and healing accelerated. . . . I have found cod liver oil therapy especially applicable to extensive crushing or destructive injuries . . . to compound fractures, gunshot wounds, major primary burns, and extensive ulcerations from deep third degree burns."

Nason's VITAGUENT is a cod liver oil ointment particularly developed for this new advance in wound and burn therapy, and for sores and ulcers. Rich in natural vitamins A and D, VITAGUENT (Nason's) is not only therapeutically effective, but also free from the disagreeable odor so common to some cod liver oil ointments.

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**Article in the Southern Surgeon, May, 1941.*

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with the greatest difficulty. Many observers believe that the principal underlying cause is the too common attitude that the war is almost over. The feeling of urgency is gone. Liberal disability benefits contribute to these delays. Others who drop out for a few days of hunting or to get in the crops cheerfully extend an unjustified absence and cover up by alleging illness on return to work. Job quitters likewise are more common than ever because of their understandable desire to obtain more permanent work before present jobs terminate. Industry, labor organizations, the War Manpower Commission and other interested agencies have instituted an aggressive plan of action to control the ordinary causes of absenteeism and labor turnovers by giving attention to such factors as housing, transportation, shopping facilities, cafeterias, child care and impressing the workers with the urgency of staying on the job. Illness, both alleged and real, as a frequent cause of absenteeism and work termination is probably the most difficult problem to control by lay agencies. The government and its contracting agents customarily require medical certificates to cover an absenteeism alleged to illness or a labor termination attributed to reasons of health. The medical profession is then put under pressure by thoughtless persons who see little harm in collecting disability benefits or in obtaining better jobs on pretext of illness. They fail to see the cumulative results of hundreds of thousands of such acts on critical war production. Responsibility rests squarely on the physician to act as prosecutor, defense attorney and judge before issuing such a certificate. He fails himself, his profession and the war effort if certificates are issued without due cause. The Army is prepared to cooperate closely with physicians in industry in order to accumulate facts about alleged illness of an employee and the possible effects of the working environment on the employees' health. Standard practices for the control of health hazards in war industries are available. The medical records of employees and diagnostic services of these plants are generally available to private physicians in troublesome cases and should be utilized fully. The medical profession is never out of the public eye. The ability of any group of workers persistently to evade the obligations of their jobs through easy availability of medical certificates must inevitably arouse unfavorable public reaction. The War Participation Committee of the Massachusetts Medical Society has established a system for review of medical certificates in that state worthy of general consideration. Every physician must assure himself that each medical certificate is exactly what it implies—a certified statement of facts based on careful examination and disinterested judgment.

—Editorial, *J.A.M.A.*, November 11, 1944.

The Problem of Fatigue

NO PROBLEM in industrial psychology has been more intensively or more profitably studied than that of fatigue. While this Committee believes that the viewpoints and methods of approach of industrial psychology on the one hand, and those of mental hygiene in industry on the other, are generally different, nevertheless, the problem of fatigue obviously has fundamental implications for the emotional balance of the worker. Early studies of the problem centered around production and perhaps rightfully so, for the production curve is one index of fatigue, but only under well-controlled conditions. It is now generally recognized that the quantity and quality of production are influenced by many variables. Even the apparent interest taken in the worker by management through the actual conducting of an experiment may make a difference. Thus, production might increase under unfavorable physiological conditions which were offset by favorable psychological ones. Yet early studies, despite the complexity of the problem, did serve a useful purpose in centering thought on the subject and in setting the stage for subsequent investigations. In England, for example, during the last war the stress of munitions production led to the relaxing of all regulations on working hours and the work week shot up to 70 or 80 hours in certain instances. It soon appeared, however, that the anticipated increase in production did not materialize; and a special commission was appointed to study the problem. Their investigation demonstrated that too long a working day was producing a state of cumulative fatigue which led to a let-down in efficiency and consequent decrease

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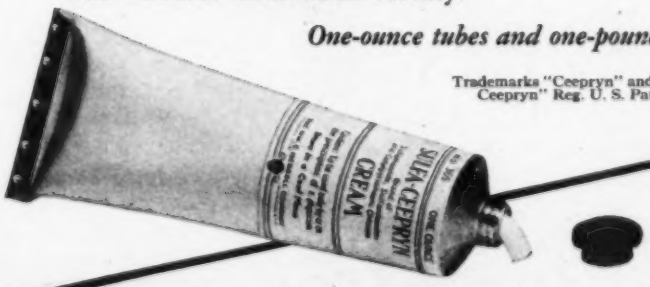

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in output. These studies suggested that in certain processes, the shortening of the working day might actually lead to a substantial increase in output. Again, analyses of productive efficiency made hour by hour have shown that, even during the working day, there are characteristic variations associated with fatigue phenomena. During the early morning hours, production rate rises as the man "gets his hand in," but in the later hours of the shift it falls again, as "fatigue" sets in. After the noon-hour, the curve starts at a higher level than in the morning and rises a little, but later falls to a lower level than that recorded at noon. In one study made in this country, production was almost nil during the last hours of a night shift. Both in England and in this country, experience has shown that the introduction of suitable rest periods during the course of a shift may so influence the "fatigue" curve as actually to increase production. The result may, however, have been due to purely psychological factors, such as the interest demonstrated by management in making the innovation, rather than to physiological factors. These phenomena are by no means universal. Obviously, where production rate is governed by the rate of operation of machines no such relationships can be manifest (except perhaps in reducing stoppage of machines or imperfection in product). Furthermore, in many activities the maximum load is far below the level at which "fatigue" in the obvious sense is likely to occur. What is clear is that in certain types of exacting labor the strain of excessive hours may be so heavy as actually to decrease production. There is good reason to believe that in other processes where no such influence on production is manifest there may be real influence on emotional stability. A member of the Committee once investigated a particular plant where the nature of the process was such that no "fatigue" effects on production were manifest, yet the managerial staff clearly recognized that the stress of work was so great that—in spite of high wages—few employees could stand it for more than a year. We have been using the word, "fatigue," in quotation marks to emphasize the fact that the problem is a highly complex one. In very exacting physical work, the phenomenon may be associated with the sort of obvious neuro-muscular exhaustion which we commonly think of as "fatigue." In other instances, the "fatigue" curve may be related to much more subtle factors, organic, pyschical, or social. In the exhaustive studies recently conducted at the Hawthorne Works of the Western Electric Company, it was shown how such curves were related to the work pattern characteristic for an individual, to the personal problems of the worker, and to the social control of work behavior in the shop. Whatever the factors involved, however, the introduction of two 10-minute rest pauses (reducing the working day by 4%) markedly increased total production. There was no "fatigue" involved in the acute sense of the term. Monotony and boredom were present, rather than exhaustion. As the investigators say, "It could be seen that the introduction of rest pauses reflected an interest on the part of management in the health and well-being of its workers. Moreover, rest pauses allowed the workers to get together and to converse. They offered relaxation and relief from tension. For the time being, at least, the 'logic of efficiency' was in abeyance and the workers were permitted normal social interaction. Unlike many of the changes which are introduced to improve efficiency, rest pauses, if properly assigned and administered, appeal to the employees' sentiments of individual integrity. It is to this total situation that the workers react favorably." Clearly, the whole question of working hours and rest pauses is one which deserves careful study on the part of the individual industry—from the standpoint of productive efficiency, as well as mental hygiene. Furthermore, the problem is one which involves not only a particular industry but also each worker as an individual. Some show the signs of job fatigue with a task requiring too much initiative, others with a task involving too great monotony. The ideal situation is one in which each worker is stimulated to a degree of achievement which constitutes a real challenge to his best efforts but which is not so great as to produce a sense of inadequacy and frustration.

—From "The Problem of Morale in Industry," Report of a Committee of the Connecticut Society of Mental Hygiene, C.-E. A. WINSLOW, Chairman.

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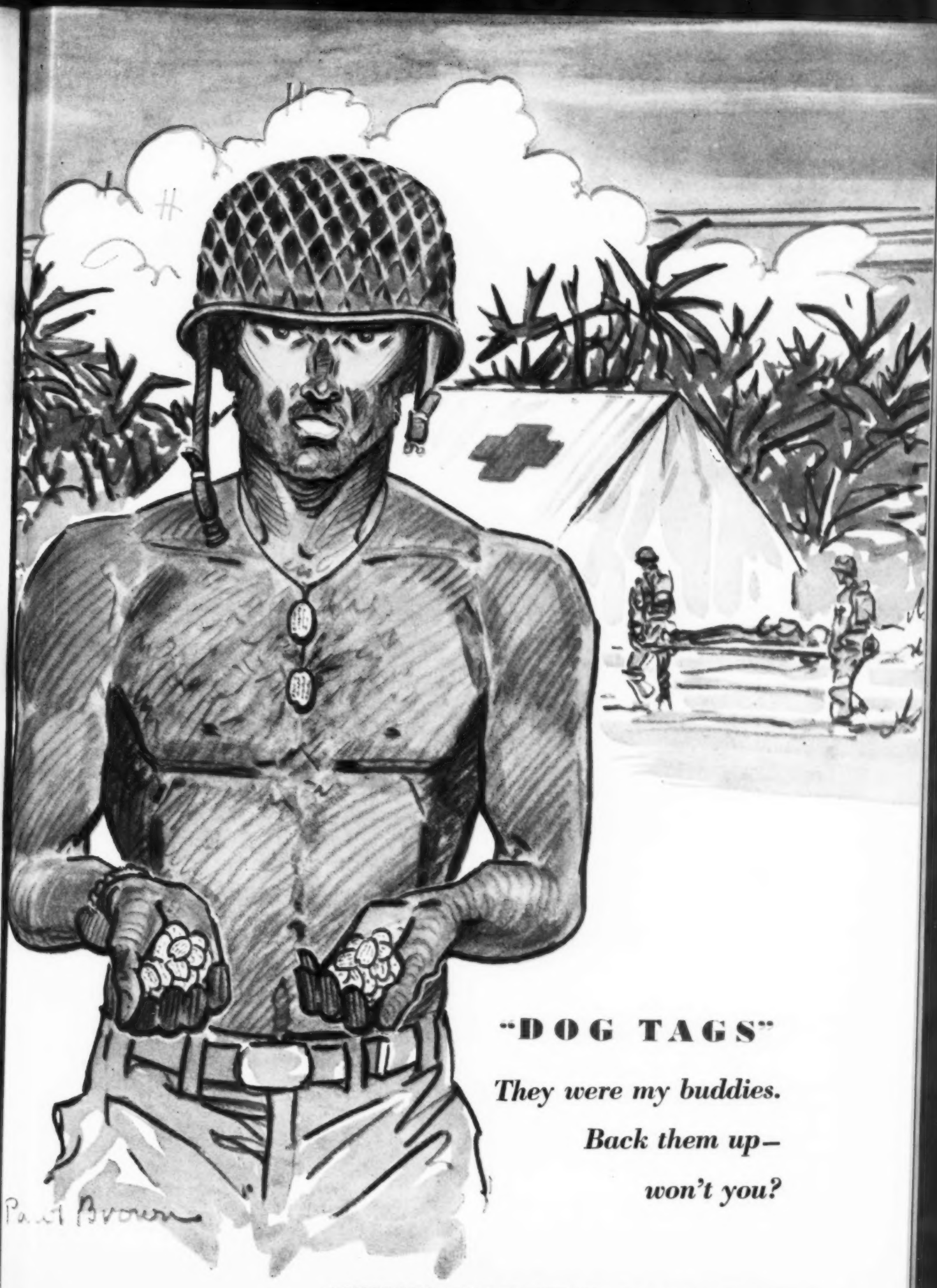

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Health Recommendations

FOR THE duration, as well as in the future, the following recommendations are worthy of attention in furthering the health program: (1) *Continue to urge employees to keep physically fit and to stay on the job.* (a) Direct health education of employees along lines that will create health consciousness and will teach them how to help themselves to health. The large number of 4-F's found by Selective Service has stimulated national interest in this subject and a national physical fitness program seems to be under way. This will be helpful but should not replace our own efforts along these lines. (b) Stimulate competitive interest among employees on this subject, particularly at the larger points of operations, by suitably recognizing departments or divisions within departments which have the "best health and on the job" record. (2) *Return certain absentees to work sooner than is now being done, and particularly absenteeism cases of longer duration.* In this we must, of course, rely upon the judgment of the local medical adviser or the physician treating the employee, but management must provide the necessary stimulus and follow-up. The early return of disabled persons to light duty is one of the best forms of physical therapy known. This war has again demonstrated the value of prompt treatment of the wounded and of getting them up and around as soon as possible and keeping them busy. Many a soldier has thus been rehabilitated and returned to the fighting front who would in earlier years have been invalided home. The Army's active convalescent technique has reduced the period of convalescence and has reduced the recurrence of disease. The Army reports only a 3% recurrence of cases under active convalescence as compared to a 30% recurrence under the obsolete passive convalescence. Absentees should not be returned, of course, to jobs that are greater than their capacity to perform but we should also remember that we can harm or even kill people by keeping them in bed too long. (3) *Speed up the periodic physical examination program as soon as medical manpower becomes available.* (4) *Obtain an adequate medical history and examination of returning veterans in order to facilitate re-employment or placement and, if necessary, rehabilitation.* Be alert to the possibility of tropical disease among war veterans and others returning from tropical areas.

—From the 1943 Annual Health Report of The Texas Company.

Panic

THE dictionary defines panic as "a sudden unreasonable overpowering fear." It is the lack of reason which makes it so difficult to take precautions with respect to panic. Consequently safety measures against it are inevitably directed towards circumstances which may never arise or which may arise in a totally unexpected fashion. One thing is, however, certain; panic is more likely to arise where a group of people are assembled than where only one or two are present. It should therefore, be considered by everyone with responsibilities in connection with factories or offices where a considerable staff is gathered together in one place or building . . . A remarkable case occurred in a large modern factory in London in which some 3000 persons, mostly women, were employed. There were five floors and a basement. On the top floor was a canteen to which the employees could occasionally go to get a cup of tea or some other light refreshment. A lift ran through the middle of the building and served all the floors, opening directly into the workrooms. It was provided with open iron-work gates so that a person travelling in the cage could observe the workrooms and the workers therein as he travelled from floor to floor, and in turn could himself be seen by them. The lift was designed safely to carry 12 persons at once. On a certain morning it was in the charge of a boy who had taken the place of the regular attendant who was ill. The lift left the ground floor with its full complement of passengers, but a number of young women on the second floor who wished to go to the canteen for their morning cup of tea prevailed upon the boy to stop. Another dozen or so were squeezed into the cage, which then recommenced its upward

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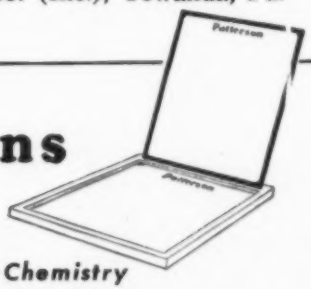

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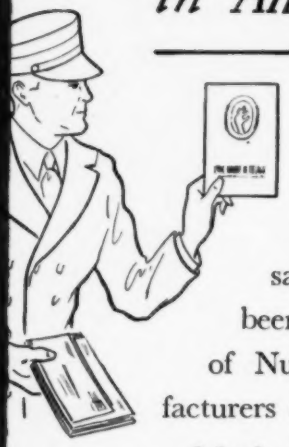

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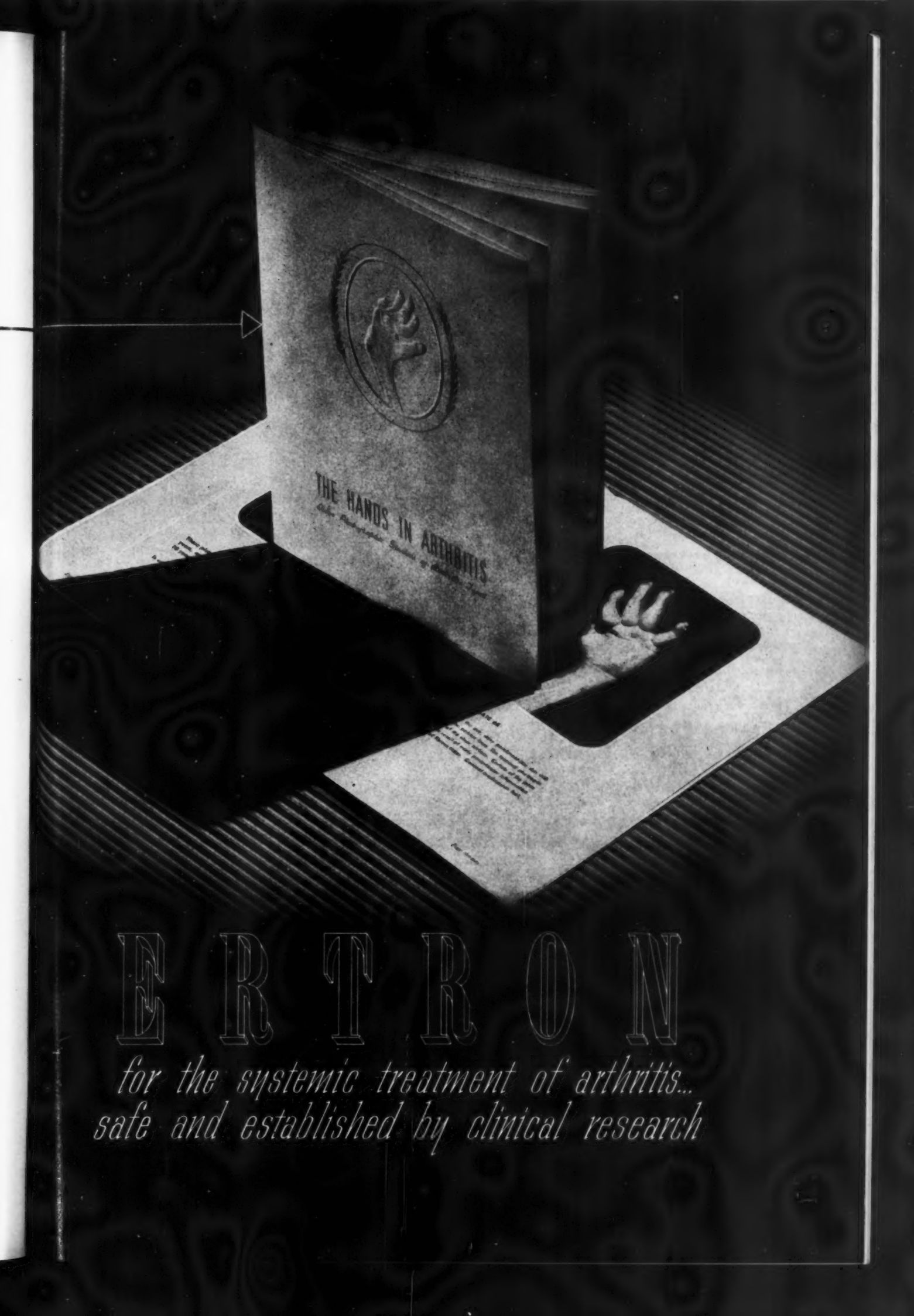

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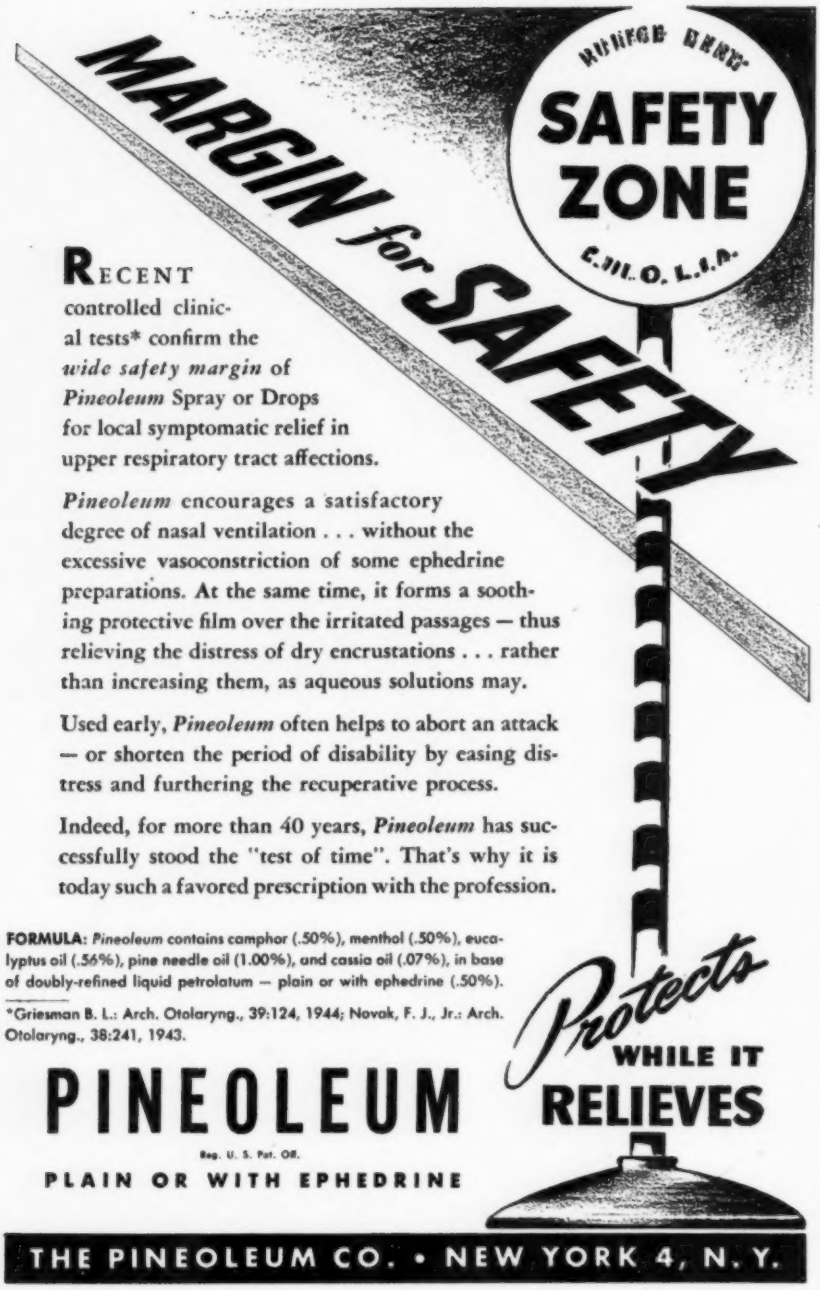
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*Griesman B. L.: Arch. Otolaryng., 39:124, 1944; Novak, F. J., Jr.: Arch. Otolaryng., 38:241, 1943.
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journey. It had almost reached the top when the excessive load caused the lifting cables, which had been recently greased, to slip on the winding drum and the cage began slowly to move downwards. The cable, slipping on the drum, emitted a loud and peculiar noise, and, although the attendant could do nothing to oppose the movement of the cage, there was in point of fact no danger whatever because the lift was provided with adequate safety devices. This notwithstanding, some one of the two dozen in the cage began to scream, and in a moment all the passengers were doing likewise. The cage with its noisy load moved slowly past, and in full view of, each of the floors of the factory. The screaming was taken up by the workers on each floor successively until the whole great factory was filled with indescribable uproar. At last the lift came gently to rest in the basement. Those inside were pressing forward so strongly that it was not possible for anyone within the lift to open the gates, but a man working in the basement did so. He was overwhelmed by the yelling group of women as they rushed out of the lift, walking over one or two of their number in so doing. The only physical injuries were sustained by two girls who were slightly hurt by being trodden on. The screaming died down in about a quarter of an hour, but in the meantime the noise had attracted the attention of the passers-by with the result that several fire-engines were quickly on the scene and a large number of policemen was quickly drafted to the spot to deal with the trouble that had not existed. As an aftermath no less than 500 of the workers failed to report for duty on the next day owing to nervous shock. . . . Panic arises from the unexpected, the unexplained, or the not understood. It is not possible to lay down rules for preventing and controlling panic. It must be assumed that in every group of persons there will be found many differing temperaments, and any preparations must take account of the worst that may happen. Premises must be designed with the question of emergency in mind. The premises and the persons who work, or are otherwise therein, must be under supervision. Exits must be open or unlocked, and kept clear. They should be properly and clearly marked, and the elementary necessity that they should all lead to places of safety should not be overlooked. All exits should open outwards. First-aid and fire-fighting equipment must be maintained in good condition and kept easily available. The staff must be made well aware of the location of light switches, fire alarms and any other safeguards. So much for the premises. No less important are the preparations wihch should be made with regard to the personnel. Everyone in a position of management, or otherwise in charge of other people, should see to all the above-mentioned matters and to any others that affect safety. He should know what he has to do in emergency and what each of his subordinates should do. He should see that every subordinate knows what he has to do, and when, and where. On the coolness, resolve and efficiency of the persons in charge may depend the safety of many. The calm assurance of the supervisory staff, the re-assuring of the group and, if necessary, the orderly unhurried evacuation of the premises make the difference between safety and tragedy. Panic is not a predictable quantity, but it is possible to understand what it is and how it can develop, and then to take every precaution to avert and control it, if it threatens.

—From *Department of Labour Bulletin*, Government of Palestine, Jerusalem.

Silicosis from Wheat Dust

DISAGREEMENT on Silicosis Due to Wheat Dust," in the "Correspondence" columns of the *Journal of the American Medical Association*, November 25, 1944: "To the Editor—'A Case of Silicosis Caused by Wheat Dust,' by Heatley, Kahn and Rex of Toledo, Ohio, published in THE JOURNAL, April 1,* is without scientific merit and should not have been accepted for publication. A claim for silicosis compensation has been presented to the Ohio Industrial Commission on behalf of the patient whose condition is described in the article mentioned. The commissioners, who are not physicians, cannot help being impressed by the fact that a medical journal has accepted for publication an article which purports to prove that silicosis can be caused by exposure to wheat dust. I submit some of the

*See quotation, INDUSTRIAL MEDICINE, May, 1944, page 54.

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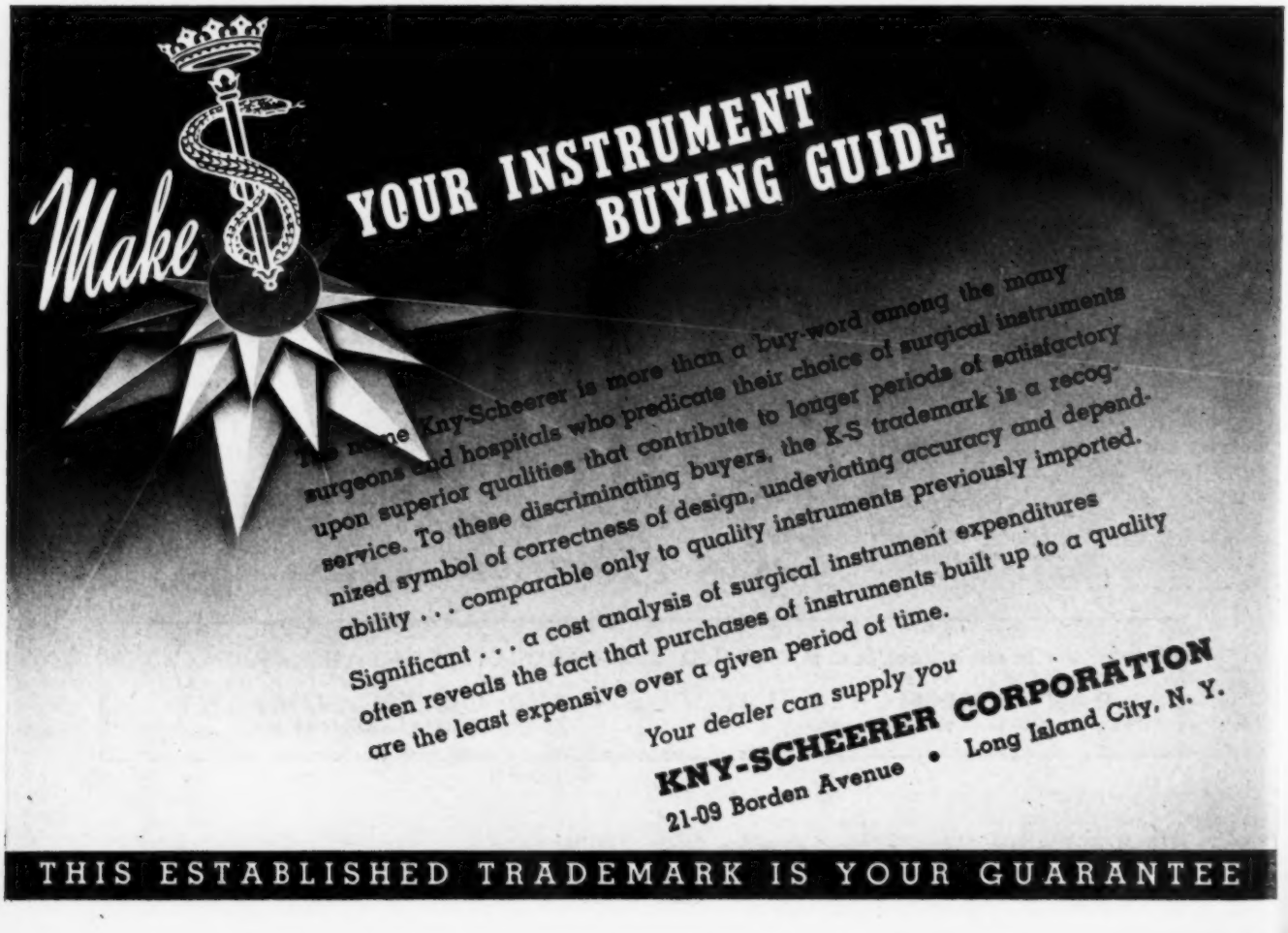
more obvious and significant points on which I believe the article is subject to criticism: (1) The occupational history is incomplete, and does not exclude the possibility of silica exposures other than the one which is alleged by the authors. (2) The first of two x-ray films of the chest is reported to show mottling in the left lung, but there is no mention of mottling or any other type of shadow indicating parenchymatous change in the right lung. In the description of the second x-ray film, made two years later, there is no mention of any type of mottling or nodulation in either lung, nor do the published reproductions of these films show any. The only obvious findings described are in the hilar shadows and linear markings. Authorities are agreed that a diagnosis of silicosis cannot be based on exaggerated linear markings and increased hilar shadows alone, yet the authors report 'a roentgenogram typical of advanced silicosis.' (3) The authors give no dust counts. They state that 20% of the dust analyzed was between 1 and 44 microns in particle size. They do not state how much of it was below 10 microns, which is recognized as the upper limit of size of silica particles which are capable of producing disease. (4) The dust which the authors analyzed is said to have come from a railroad car and a tunnel, but they do not state whether it came from the atmosphere breathed by the workmen or was scraped up from the floors. (5) A chemical analysis is submitted showing that this dust contained certain percentages of 'silica.' Chemical analysis does not distinguish between free silica and silicates. No petrographic examination or x-ray diffraction examination is reported. The authors, therefore, have not proved the presence of silicon dioxide in the dust analyzed. (6) The authors report that the second examination of the patient, after a two year interval, showed diminished vital capacity and increased emphysema, which is inferred to be the immediate cause of the patient's disability. They give no vital capacity measurements and do not mention any of the clinical or x-ray data on which their diagnosis of emphysema is based. It is the opinion of Gardner and other authorities that emphysema does not develop as a complication of silicosis until the silicosis has reached an advanced stage with extensive conglomeration of the nodular shadows. (7) The authors state that a comparison of the two x-ray films showed that 'the heart shadow contour had changed as a result of the changed lung condition.' They do not describe the nature of this change nor do the reproductions of the x-ray films show it. The only type of heart disease which might be induced either by emphysema or by advanced silicosis is 'cor pulmonale.' This is a difficult clinical diagnosis to make and probably no experienced cardiologist would attempt to make it without the help of an electrocardiogram. No electrocardiogram was reported in this case. In conclusion it is my contention that the authors have submitted no proof that their patient either had silicosis or had been exposed to silicon dioxide present in wheat dust.—RAYMOND C. MCKAY, M.D., Cleveland. Member, Ohio Board of Silicosis Referees."

The Mobile Unit

PAUL D. CRIMM, M.D., director, Boehne Tuberculosis Hospital, Evansville, "The Mobile Unit as a Case-Finding Agency," in *Monthly Bulletin*, Indiana State Board of Health, November, 1944. Extract: "Although few individuals have active tuberculosis at the time of the x-ray survey, there are at least 10 people out of every hundred who have had significant lesions of tuberculosis. Many of these never knew they had had tuberculosis. The warning these x-rays give to these people in that they are advised to protect their health, in order to avoid future breakdown of their tuberculosis, is certainly worth the effort and cost. It eventually will reach 'pay dirt,' in that it will reduce future mortality rates. At present all x-rays are taken on a voluntary basis. After the worker realizes that the mobile unit is interested in his health and not designed to throw him out of a job, it can be made compulsory. Likewise, when management agrees to make mandatory an x-ray of the employee be-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nized symbol of correctness of design, undeviating accuracy and depend-
ability . . . comparable only to quality instruments previously imported.
Significant . . . a cost analysis of surgical instrument expenditures
often reveals the fact that purchases of instruments built up to a quality
are the least expensive over a given period of time.
Your dealer can supply you
KNY-SCHEERER CORPORATION
21-09 Borden Avenue • Long Island City, N. Y.
THIS ESTABLISHED TRADEMARK IS YOUR GUARANTEE

pH6 BANISHES "Factory Hands" FOR SHIPYARD PAINT CREW

NO MORE WASHING UP WITH NAPHTHA FOR ME! THIS pH6 REALLY TAKES THE PAINT OFF.
YES SIRREE! AND LOOK HOW MY SKIN HAS CLEARED UP SINCE WE'RE USING pH6.
NAPHTHA

ACCEPTED FOR ADVERTISING IN PUBLICATIONS OF THE AMERICAN MEDICAL ASSOCIATION

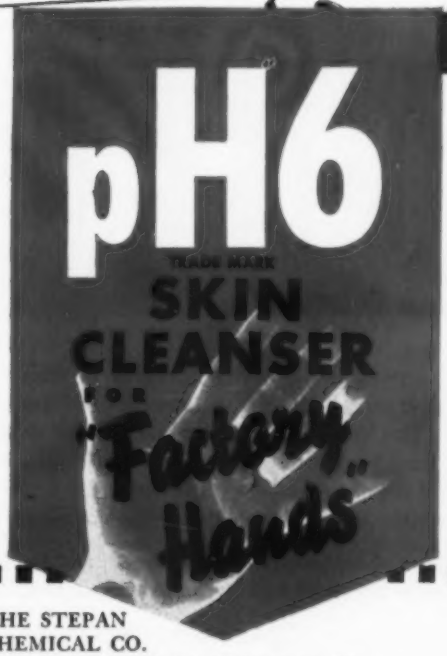
They would come in from their outdoor spraying jobs coated to the elbows with red lead or battleship grey. The strongest soaps would not take it. So these shipyard* workers would douse naphtha on a piece of dirty waste to cut the paint. Then they'd finish up with a gritty alkaline soap. Result: they'd go back on the job with *thoroughly defatted skin* exposed to the cold wind. No wonder painfully chapped skin was a universal complaint!

Then the management put in pH6. Workers quickly discovered that pH6 *alone* removed the paint . . . and left the skin in a fine, well-lubricated condition. There was no more complaining, no more filing of grievances, no further trouble.

Here is just one more instance where pH6, by correcting harmful wash-up habits, got rid of "Factory Hands" . . . the raw, red, defatted skin condition which causes so much discomfort, embarrassment and even loss of manual dexterity. With its multiple advantages, this sulfated oil of dermatological quality costs no more *and often less* than many grades of industrial powdered hand soaps. In the shipyard mentioned above, pH6 actually provided a cash saving by eliminating the use of costly naphtha for wash-up purposes.

Convenient, economical dispensing methods are available to fit all types of wash-room equipment. Send today for free samples and complete technical data. Mail the coupon!

**Name of shipyard on request.*



THE STEPAN CHEMICAL CO.
1353 North Branch St., Chicago 22, Ill.
Gentlemen: Please send samples and circular on pH6. No cost or obligation.

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FIRM_____
ADDRESS_____
CITY_____ STATE_____ IM12

fore he is hired, tuberculosis will raise still higher the white flag of surrender to the mobile x-ray unit."

MORE than 1,000 medically discharged men of this war are working at Ford Motor Company on jobs carefully selected and supervised by the organization's Medical Transfer Department.

—*Notes & Quotes*, Connecticut General Life, December, 1944.

ACTIVITIES of STATE HEALTH DEPARTMENTS

New Jersey

THE emanation of sulfur dioxide from a large pigment manufacturing plant into Perth Amboy resulted in the calling of a joint conference of members of the Bureau of Industrial Health, city and company officials. At the conference Mayor John A. Delaney requested that the city attorney file with the Court of Chancery a request for an injunction demanding that the plant operation causing the nuisance be stopped immediately. . . . AT THE annual meeting of the New Jersey Tuberculosis League in Trenton on October 17, a round-table discussion was held on the subject, "Problems of Developing a Program for the Discovery and Prevention of Tuberculosis in Industry." Participants in the discussion were DR. LEOPOLD BRAHDY, Physician in Charge, Division of Occupational Diseases and Injuries of Municipal Employees, New York City, MISS EVELYN DUBROW, Assistant to the President, State C.I.O. Council, DR. A. JOSEPH HUGHES, Medical Supervisor, State Tuberculosis Control Program, and DR. J. F. JOHNSON, Medical Director, Eastern Aircraft-Trenton Division, General Motors Corporation. . . . IN THE October issue of the Bureau of Industrial Health's publication, *Industrial Health Bulletin*, the basic principals of a health promotion program in industry are outlined. Accompanying the Bulletin are sample pamphlets of the Workers' Health Series and a sample poster promoting the reading of the leaflets. These have been distributed to plants throughout the state.

Pennsylvania

THE Dental Consultant of the Bureau of Industrial Hygiene, Pennsylvania Department of Health, is inaugurating a survey of dental facilities available in all Pennsylvania industrial plants which provide medical service to employees. The survey will be conducted in the 327 plants providing either full or part-time physician service. . . . AT THE request of the War Manpower Commission, the Bureau of Industrial Hygiene of the Pennsylvania Department of Health will survey 50 foundries throughout the state with a view toward making recommendations for the improvement of environmental conditions.

West Virginia

ON OCTOBER 17 and 19, 1944 in Fairmount and Wheeling one-day Institutes were held for industrial nursing groups in those areas. MISS M. E. INGOLDSBY, Industrial Nursing Consultant of the Bureau of Industrial Hygiene, who was instrumental in organizing these groups made arrangements for the Institutes. MISS RUTH KAHL and MISS ELNA I. PERKINS conducted the meetings. A great variety of topics was discussed, including standing orders for nurses, health education, relationship of industrial nursing to other branches of the nursing profession, and placement of the returning veteran. The industrial nurses present actively participated in discussion of the subjects and felt the Institutes had been very beneficial to them. . . . ON NOVEMBER 1, 1944, DR. C. SCOTT MCKINLEY, Director of the Bureau of Industrial Hygiene, West Virginia State Department of Health, addressed the Parkersburg Academy of Medicine, Parkersburg, West Virginia, on the subject of "Medical Service in Industry and Industrial Health." Although most of the physicians were not actively engaged in industrial medicine they did actively participate in the discussion following the formal presentation.

COUGH... ANTIPHLOGISTINE

THE accompanying cough present in many affections of the Respiratory System is usually part of Nature's defense mechanism. The complete suppression of the cough by the use of drugs may be harmful, and yet the troublesome cough, particularly if it is associated with retrosternal tightness, or muscular, or pleuritic pain, will rob the patient of much needed rest.

The value of externally applied moist heat for the relief of these symptoms is recognized by many physicians.

ANTIPHLOGISTINE as a medicated poultice provides a convenient method for applying moist heat for prolonged periods.

ANTIPHLOGISTINE is valuable as an adjuvant in the symptomatic treatment of Bronchitis—Chest Colds—Tracheitis—Tonsilitis—Pneumonia—Pleurisy.

ANTIPHLOGISTINE maintains moist heat for many hours.

Antiphlogistine

Formula: Chemically pure Glycerine 45.000%, Iodine 0.01%, Boric Acid 0.1%, Salicylic Acid 0.02%, Oil of Wintergreen 0.002%, Oil of Peppermint 0.002%, Oil of Eucalyptus 0.002%, Kaolin Dehydrated 54.864%.

The Denver Chemical Mfg. Co., New York 13, N. Y.

WINTER SPORTS, the lure of crisp, cold days — no season this for debilitated, run down patients. The rigors of winter challenge bodily well being, and nutritional deficiencies take their toll. Trophonine X, the liquid food supplement of choice in such cases, makes available carbohydrates for quick energy production; five recognized synthetic vitamin B complex factors help stimulate appetite and maintain nervous tone; readily absorbable amino-acids and other hydrolyzed protein derivatives assist in nourishing every tissue and organ in the body; and a moderate alcoholic content assures quick stimulation.

FORMULA: Each fl. oz. of this palatable, nutritious, readily assimilable preparation contains:

Thiamin Hydrochloride (vitamin B_1)	.5 mg.	Pyridoxine Hydrochloride (vitamin B_6)	0.75 mg.
Riboflavin (vitamin B_2)	2 mg.	Carbohydrates (dextrin, dextrose, lactose, maltose and sucrose)	4 Gm.
Niacinamide	10 mg.	Amino-acids and other hydrolized protein derivatives	1.6 Gm.
Calcium Pantothenate	1.5 mg.		

Help to keep your patients fit with Trophonine X . . . Strictly ethical.

DOSAGE: As directed by physician. Two tablespoonfuls of Trophonine X contain the recommended minimum daily requirement of riboflavin and niacinamide, and more than the bodily daily need of thiamine hydrochloride — the antineuritic vitamin.

AVAILABLE: 12 oz. and 1 gal bottles.

REED & CARNRICK
JERSEY CITY 6, N. J.

TROPHONINE X

This advertisement is run as a correction for the advertisement which appeared in the October issue. The mistake in the advertisement was not the fault of the publisher.

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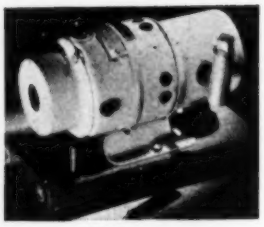
JORDAN AIR AND SUCTION PUMP

⅛ to ⅞ cu. ft. per minute air displacement



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Tankless — Noiseless — Durable

NW-999 . . . for 25" to 27" vacuum and 18 to 20 lbs. pressure. Ivory finish on natural wood filter and muffler base. Complete with toggle switch and Belden twin cord. Two year positive guaranty against mechanical defects $35.80

NW-222 . . . for 20" to 24" vacuum and 14 to 17 lbs. pressure. Complete as above in black finish with walnut base. One year guaranty $25.80

Will ship for 10 days trial, transportation both ways your only cost.

JORDAN PUMP COMPANY

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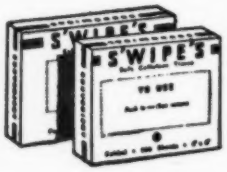

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Cellulose Tissues, absorbent, disposable. For use as Mouth, Ether or Sputum Wipes.

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FIBREDOWN CELLULOSE HOSPITAL ROLLS. Neatly and tightly enclosed in a strong blue paper wrapper and available in standard size rolls or in any cut size desired.

FIBREDOWN SANITARY SHEETING has an Absorbent Cellulose front with or without water-repellent backing. In roll or sheet form.

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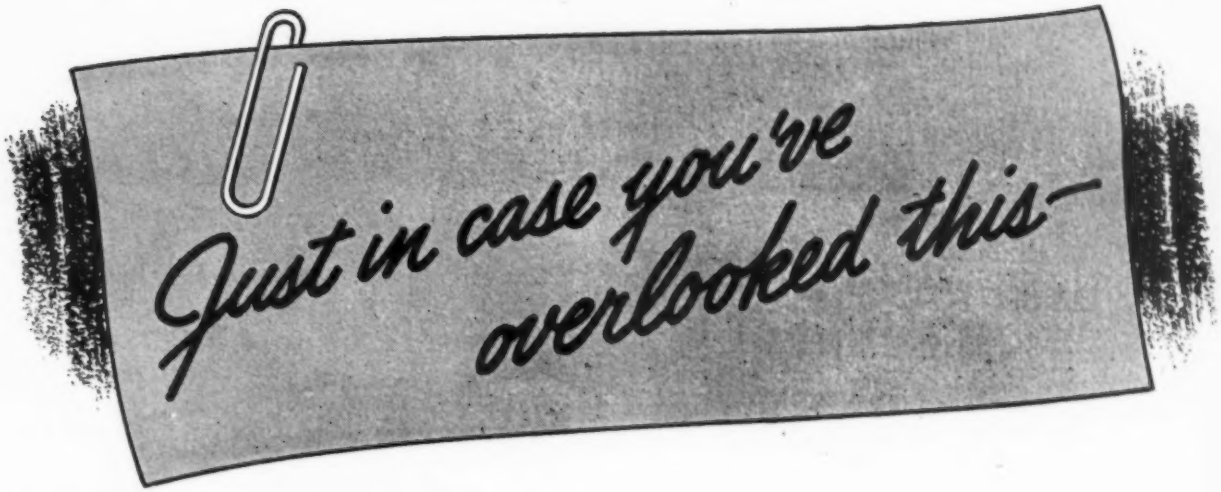
CURRENT ARTICLES of QUALITY

Industry Contributions

FROM *Fortune*, "U. S. Medicine in Transition," December, 1944. Extract: "Industry, for reasons of humanity, efficiency, or both, has made important contributions to the theory and practice of medical reform. For example, there are in the U. S. a variety of employer-sponsored plans for providing medical care to employees through prepaid group practice. A few employers, like Endicott-Johnson, foot the entire bill; i.e., in effect pay an annual bonus amounting to the cost of medical care. Some, like Consolidated Edison of New York, split the cost with the employees. Most sponsor a plan whose costs are borne by the employees. Some, like Standard Oil of Louisiana, include dependents in the plan. Others, like Henry Kaiser's Permanente Foundation (Oakland, California) and Northern Permanente (Vancouver, Washington), have excluded them, sometimes only because of wartime lack of facilities. The Kaiser scheme is one of the most interesting. It provides employees with superlative medical care in their own hospitals at a low cost (50 cents weekly in Oakland, 60 cents in Vancouver) paid voluntarily and entirely by the employees. The plan, directed by Dr. Sidney R. Garfield, has been publicized by Paul de Kruif's ecstatic book, *Kaiser Wakes the Doctors*, and by Henry J. Kaiser's looming personality. At Oakland, 62,000, or 90% of Kaiser's shipyard workers have joined the plan. Sixty-six full-time, 10 part-time doctors, and 240 graduate nurses serve them with just about everything except maternity and dental care. The plan does not provide preventive care in the form of routine diagnostic checkups. Dr. Garfield thinks good diagnostic examinations would save money in the long run, but the local union opposed physicals, which always look like a possible basis for laying a man off. A new hospital in Oakland will enable Dr. Garfield to take families at a charge of $7.50 a month for three or more. The Permanente ventures not only pay current expenses and salaries that most doctors regard as enviable (from $5,400 to $12,000 annually) but have yielded a surplus large enough to amortize their capital investment in hospital plant at the rate of about $25,000 a month. The surplus will eventually be used for research and education. Group Health Association, Inc., is a Washington, D. C., cooperative health plan for government employees, which started in 1937 with a grant of $40,000 from the Federal Home Owners Loan Corporation. Thirty-five hundred members and 5,600 dependents have joined."

Education in Prevention

EDITORIAL, "The Place of Preventive Medicine in the Medical Curriculum," in *American Journal of Public Health*, December, 1944. Text: "The Conference of Professors of Preventive Medicine, held at the time of our New York meeting, staged an interesting discussion on the rôle of courses in preventive medicine in the education of the physician. It was generally agreed that 'Public Health' is a field for postgraduate training but that 'Preventive Medicine' is an essential part of the training of the medical student. An important point was raised, however, by speakers who contended that this subject might well be taught as a part of other courses and not as a separate item in the curriculum. Clearly this is a counsel of perfection. The day may come when personal hygiene is taught as a part of physiology and when the clinical branches of medicine are developed not only from a *preventive* aspect but also with a view to that *constructive* medicine which visualizes the ideal of health in a positive sense as the goal of the physician. Were such ideals generally realized (as they are today in some pediatric faculties) no separate department of 'preventive medicine' might be needed. That day, however, is far in the future. Even in such a Utopian situation, there is one basic element which it would be essential to add to the curriculum. Nowhere (except in 'preventive med-



There is an Important Difference in Oral Cold Vaccines

Organisms from which bacterial vaccines are prepared produce two antigenic factors, namely the surface ectoplasm produced by the life activity of the bacteria, and the antigenic substance developed within the bodies of the bacteria.

By a process developed in Sherman Laboratories both the ecto (water soluble antigens) and the endo-antigens (whole killed bacteria) are included in

SHERVAC *Oral* COLD VACCINE

That the resulting product should possess superior immunizing properties, due to higher antigenic potency, than a vaccine containing only one or the other of the immunizing properties of the bacterial organisms, is a readily understandable fact.

For convenient dispensing to industrial employees, Shervac Oral Cold Vaccine Tablets are furnished in handy vest pocket packets of 12 tablets, at no extra cost.

Write for special quantity prices, samples, literature and suggestions for group immunization programs.

The earlier prophylaxis is started, the more effective it will prove to be. Be sure to get the details now!

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G. H. Sherman, M. D., *Founder*

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Sample and Literature on Request.

ENZO-CAL*, an effective antipruritic cream, not only supplies soothing, healing qualities to irritated skin . . . without the need for incapacitating dressings . . . but also supplies invisible protection to hands where gloves or greasy ointments would interfere with the work.

ENZO-CAL

ENZO-CAL (benzocaine, calamine and zinc oxide) is the drug of choice for the prevention of contact between chemical irritants and the skin, as well as for the treatment of industrial dermatitis.

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icine' or 'public health') does the medical student receive instruction in the basic and fundamental influences on health of the physical and social environment. When the work of the clinical years has become thoroughly permeated with a preventive and constructive viewpoint, there will still be need for a special course (perhaps preclinical) in Environmental Therapeusis, covering the influences of sanitation and of the community machinery and social factors influencing physical and emotional well-being. This is a subject quite as important as Materia Medica. Finally, in considering the basic problem of arousing in the medical undergraduate a really vital interest in prevention, we should not forget the obstacles placed in our way by the present economic basis of medical practice. So long as the doctor is paid on a fee-for-service basis, his income and his opportunity for service must depend on the treatment of disease, since he will be called in only when something hurts. The medical student subconsciously realizes this fact. Only when the doctor is habitually employed on a prepayment basis for health service will preventive and constructive medicine really become and continue vitally significant."

"March Fractures"

DR. IRVING S. CUTTER, in his column, "How to Keep Well," in *Chicago Tribune*, November, 1944: "A few weeks ago I had a visit with one of my medical colleagues who has been attached to a training base in the Carolinas. He was willing to admit that the program to which recruits are subjected is a strenuous one. But it is necessary, so he remarked, 'to rule out the unfit.' This was achieved by long hikes, sometimes interrupted with obstacle drill. To my inquiry concerning the physical condition of the soldiers, he mentioned the rather frequent observance of pilonidal cyst, which was discussed in this column in May. His next comment—namely, that he had encountered a substantial number of 'march' fractures, aroused my curiosity. He went on to explain that a dozen or more of these embryo warriors had exhibited broken metatarsals. These bones are the longest in the foot and there are five in all, one corresponding to each toe. They lie back of the digits, however, and their heads (forward ends) form the 'ball' of the structure. In the course of a long tramp, although there may have been no stumble or fall, the sufferer would experience a sudden pain which forced him to limp. What had happened? Owing to the powerful contraction of the muscles, one of the solid supports in the extremity had snapped. X-ray films revealed the lesion, whereupon the diagnosis was confirmed. Most of the breaks were in the middle of the shaft. There was nothing to do but to make certain that the fragments could not be displaced. This was accomplished through the application of a plaster cast, to which a walking heel was attached. This allowed the patient to get about and perform light duty. Six weeks later he was permitted to resume routine activity but was cautioned not to indulge in excessive exercise. What brings on the defect? Apparently the pull and haul of the muscles between certain parts of the skeleton was just more than the bony framework could withstand. It is also possible that the individual may not be quite as well nourished as the chap who goes through the same maneuvers without the slightest trouble. It was noted that difficulties of this character did not occur among those who were accustomed to lead outdoor lives. All the victims were relatively inactive as civilians. They had failed to keep up participation in games in which they probably indulged as youngsters. Several of the cases were recognized when a member of the 'awkward squad' complained that his toes felt stiff. This symptom was explained as a reflex spasm and led to a more thorough investigation, whereupon the break was revealed. Ordinarily, we would expect that such accidents would be the result of a jump, landing with the full weight of the body on the forward portion of the foot. The patients in question were not exposed to this hazard. It was only when the men began to fall out that the condition was suspected. All personnel of

THE *Logical Choice*

IN HEMORRHOIDAL THERAPY. . . .

STOPS HEMORRHOIDAL PAINS . . . WITHIN 5 MINUTES

FOR the relief of inflammatory rectal conditions so common with patients everywhere, RECTAL MEDICONE meets these objectives:

1. ANESTHESIA OF THE EXPOSED NERVES
2. HEMOSTASIS OF BLEEDING VEINS
3. DECONGESTION OF THE VARICOSITIES

Many thousands of physicians during the past ten years have employed RECTAL MEDICONE to relieve pain, control bleeding and reduce congestion in rectal conditions where surgery is not indicated, also in pre-surgical and post-operative treatment. Clinical experience in many hundred thousand cases proves that RECTAL MEDICONE stops hemorrhoidal pain within 5 minutes.

The wide and constantly growing employment of RECTAL MEDICONE attests most eloquently to the foremost place which it has attained in its field.

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RECTAL MEDICONE

this group recovered. For them, however, it was necessary to lengthen the training schedule in order to qualify them for full duty. In other words, the long march plan was approached more gradually. The hardening process for these individuals required several months, instead of the average two or three."

Women in Heavy War Work

EDITORIAL, in *Western Journal of Surgery, Obstetrics & Gynecology*, September, 1944 (52:9, 399-401). Text: "There are four basic agencies fundamentally interested in the health aspects of the problem of women in heavy industry. These are—not necessarily in the order in which they are named—(1) the women themselves (labor unions); (2) the employers; (3) the medical profession; (4) public health agencies (Federal, state, local). The special interests of these four groups are, of course, to a considerable degree overlapping. On the other hand, there is sufficient specialized interest pertinent to each group to more than justify an active independent partisanship and the expense of a substantial effort. It can honestly be stated that until relatively recently the only one of these four agencies which has really given the problem its correct emphasis has been the public health bureau. Employers, rather sporadically to be sure, have probably been next in line in promoting progress in this field. Physicians, except in individual cases, are not to be congratulated upon their initiative or their perserverance in these matters. And as for the labor unions and the women themselves, they have been until recently almost completely inert if not actively antagonistic to these trends. It is only fair to outline briefly a few mitigating factors in all of these attitudes. That the public health agencies have always been aggressively interested in this field is natural. It is their assigned duty and the clearly delineated work for which they are organized and paid. Naturally, then, they should have assumed the forefront as proponents in the organization of the entire field. The employers—at least those with sufficient foresight and intelligence to appreciate the ultimate favorable effects of proper procedure—should also have been expected to assume an aggressive role in the organization of the proper health supervisional systems. However, unstinted credit is not to be granted them in this connection. Unfortunately, only relatively limited segments of this great contributing group can be granted credit for true initiative and courageous foresight. Too many employers have remained aloof and continue to do so for the following reasons: (a) they have not carefully evaluated the ultimate benefits; (b) they are unwilling to make the immediate financial outlay which is required; (c) they do not have any basic health supervisory set-up upon which to build; (d) they are the victims of a vast inertia which is the product of cost-plus programs and (from their selfish point of view) the lack of necessity for any change as long as they prosper financially. There are certain fundamental factors in the status of the medical profession in this category: (a) There simply are not enough available physicians (for obvious reasons). (b) There are not enough specially trained, endowed and equipped leaders in this field. Leading industrial physicians and organizers are men who have brought themselves up in this specialty by their own boot-straps. There is no special training available except that of hard experience. (c) The great bug-bear of socialized medicine has frightened most physicians out of this field. The necessary tie-in with various degrees of regimentation has caused physicians in their accustomed manner to shut their eyes and not to allow their right hand to know what their left hand doeth. The profession, to be perfectly frank, in this respect is now involved in one of the greatest psychological shambles of history. Things that are being done are absolutely paradoxical in the face of the dusty tenets of professional ethics. Progress here must proceed in spite of the fusty ideology of the majority of professional men. The profession needs: (1) a thoroughgoing, absolutely honest, non-partisian analysis of the entire situation; (2) the formulation of new codes and the deletion of paradoxical, reactionary

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for plant nurses and doctors...

A war plant nurse called for help—to reduce the number of absentees among women who were missing 1 to 3 days each month, frequently on "problem days."

Now, the makers of Kotex* Sanitary Napkins offer new, free material to combat this kind of absenteeism in your plant. Two helpful booklets are available to you—an instruction manual for use in classes, a handbook to distribute among your workers. Both are practical—both are *free*. Just mail the coupon. We'll send them to you right away.

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Easy-to-read free booklet designed for your workers. Lists do's and don'ts for women. Tells how to feel better and stay on the job regardless of the calendar. Discusses sleeping, drinking, showers, diet, lifting. How to curb cramps, when to see a doctor. Advice for older women.
EVERY MINUTE COUNTS
New Instruction Manual equips plant nurses and doctors to conduct classes for women workers. Gives authoritative facts on menstruation, teaching suggestions, answers to women's questions. Send, too, for free Charts on Menstrual Physiology, for classroom display.

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.....a copy of the Instruction Manual "Every Minute Counts" together with Visual Charts on Menstrual Physiology.

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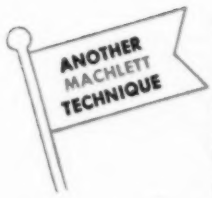

WE ARE not going to tell you here why this tube was made, what it does, or what it is for. The important thing about it to you as a user of X-ray tubes is that it represents the toughest assignment ever handed the X-ray tube industry, and that of all tube makers only Machlett perfected the techniques that made the tube possible.

The tube is sealed-off, vacuum-tight, and operates at 2,000,000 volts, direct current. These and other difficult conditions were essential to assure high and constant power, reduction of heat, and precise focusing of the electron beam.

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The perfection of this 2,000,000-volt direct-current tube is the best proof we can offer of the value of the Machlett skills that go into the design and manufacture of every tube bearing our name . . . Machlett Laboratories, Inc., Springdale, Connecticut.

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X-RAY TUBES SINCE 1898
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By eliminating the need for hot water bottles, electric pads, hot towels, in the treatment of local inflammations, Numotizine not only simplifies the nursing procedure but permits the patient to relax and sleep without interruption.

By stimulating phagocytosis, increasing the local circulation and encouraging removal of the products of inflammation, Numotizine affords relief in such local inflammatory conditions as:

Boils • Painful throat conditions
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A single application of Numotizine will last for the duration of the night—providing effective decongestion and analgesia for eight hours or more.

FORMULA:

Guaiacol	2.60
Beechwood Creosote .	13.02
Methyl Salicylate . .	2.60
Sol. Formaldehyde . .	2.60

C. P. Glycerine and Aluminum Silicate q.s. 1000 parts.

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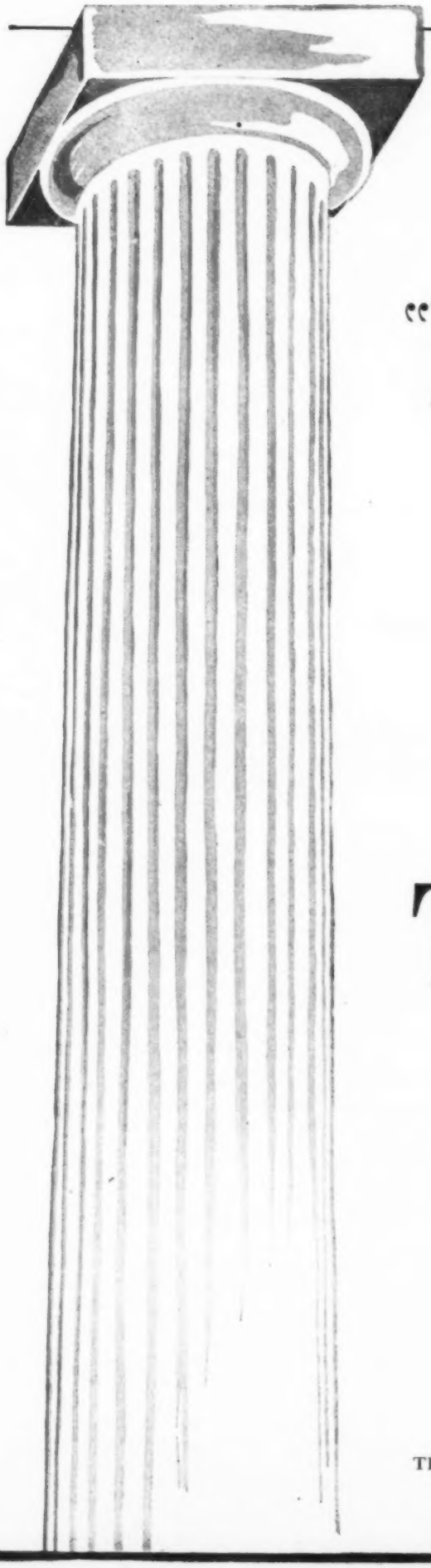
tenets; (3) the organization of educational facilities to teach industrial medicine; (4) more available physicians. Concerning the women themselves—with whom, by necessity, we may as well deal through the medium of the labor union—there is a good deal which the casual observer does not understand. In spite of vacuous generalizations about ignorance and unwillingness to cooperate, it has always and universally been proved that when women are offered sensible and clearly logical health programs they are eager to adopt them. All large-scale systems, however—and especially those involving pre-employment and periodic health examinations of women—have immediately involved the labor unions as the determining agency. This has altered the situation for a fairly obvious reason. It must be admitted that so-called health examinations have been used in the past as a discriminatory method against individuals who are not wanted by employers. This has always involved union connotations. Another factor of some importance—women as ordinary human beings are anxious to have the jobs they want rather than the jobs they should have. They are apt to feel that health considerations, particularly involving physiological angles such as menstruation, the menopause, etc., should not be used in a discriminatory manner as regards their hiring or type of employment. They are, therefore, concerned not only about actual pathological entities but also about these other more prevalent if less serious factors. One more consideration in this connection: Some mental octogenarians still believe that women may regard thoroughgoing physical examinations as an insult and an indignity. It must be reported here that, to our amazement, such an attitude cropped out at the Sixth Annual Congress on Industrial Health in Chicago. This is an attitude which, to our minds, exists only in jelled cerebrum of the superannuated mid-Victorian. It needs no further consideration and is more often limited to fusty individuals withdrawn from actual workaday problems. Having stated and characterized briefly the underlying components of this problem, we may now state very simply that the greatest difficulty which underlies the entire argument is lack of basic knowledge. A survey of the available literature is indeed discouraging. Attendance at congresses and conferences is only encouraging in relation to good intentions and the possible future. Here is a field in which there is the most distressing lack of factual data. The indication that foresighted agencies are admitting this fact and that the mechanism is gradually taking shape to start at the bottom with the collection of necessary facts, is a good omen. If we start with the frank admission that there is very little, either from the social, industrial, or scientific side, which is sufficiently solid, we will get farther in the long run. The organization, then, of sources of material is absolutely essential. One excellent trend which ran through the deliberations of the Sixth Annual Congress was the frank admission by all agencies of this lack of documentation. This editorial comment is made in the same interest as the symposium which appears beginning on page 359 of this Journal.* The essays presented, together with the panel discussion, present a somewhat heterogeneous, yet to our mind a really fertile source of information. The entire symposium reflects accurately the spirit of the Congress which was one, definitely, of humility and the desire to start from the bottom and work at basic requirements. Smug complacence was conspicuous by its absence. Specialists in obstetrics and gynecology, specialists in industrial medicine, representatives from the female branches of the Armed Forces and the Federal bureaus met with a common purpose and with relatively open minds. It is probably a good thing that the attempt was not made to formulate definite conclusions. The crop here is still too young for harvesting. It is our conviction, however, that a few inner wheels have been set in motion toward the completion of some new and more efficient machinery. If, now, all affected agencies put a willing shoulder to these wheels, the problem will shortly begin to dissolve itself."

*This is the Symposium on Women in Industry presented at the Sixth Annual Congress on Industrial Health, sponsored by the A.M.A. Council on Industrial Health at Chicago, February 16, 1944, as follows: (1) "Protection For Industrial Women: Progress and Prospects"—MARY ANDERSON, Washington, D. C. (2) "Why Do Women Stay Away From Work? A Preliminary Report"—C. O. SAPPINGTON, M.D., Chicago. (3) "A Practical Industrial Health Program For Women"—FRED B. WISHARD, M.D., Anderson, Indiana. (4) Comment from the Committee on the Health of Women in Industry of the A.M.A. Section on Obstetrics and Gynecology—H. CLOSE HESSELTINE, M.D., Chicago.



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Scientist in Government

EDITORIAL, November, 1944, issue of *The Chemical Bulletin* of the Chicago Section of the American Chemical Society, reprinted from *The Memph-ion*, of the Memphis Section of the American Chemical Society, September, 1944: "Shattering all precedent, an announcement was made recently which disregards all principles of traditional bureaucracy. Rubber Director Bradley Dewey submitted his resignation and recommended that his office be abolished! In this action, Dewey's is the first wartime agency to volunteer to liquidate itself. In examining this unprecedented move, it is to be observed that the synthetic rubber industry is now strong enough to supply the nation's basic requirements. But this, in itself, would not be a sufficiently compelling reason for a bureaucrat to cut off his means of patronage. A contributing factor, however, becomes apparent when it is remembered that Dewey is a chemist, not a bureaucrat. Drafted to direct the rubber program after the resignation of William Jeffers, Dewey brought to his post the experience and outlook of the chemist, trained in the scientific method and impatient with the wasteful methods of bureaucracy. Now that the job is done, he is ready to close up his office and quit. Rather than extend his functions indefinitely like a true bureaucrat, he stuck squarely to his job and finished the task. That is the way a chemist, the way a scientist *would* do it. The example of Bradley Dewey, the chemist, in the conduct of his public responsibility is only one of many that we have seen in the present emergency. As problems of an increasingly technical nature have arisen in the prosecution of this, the most technical of all wars, men of science have been called upon for service in the government as never before. Many whose tasks are of a temporary nature, like Dewey's, will want to return to former pursuits after the war. This is quite proper. But let us hope that where the problems have more permanent aspects, others will continue in service to government and thus show the way for the greater assumption by chemists of their obligations in public life. For, despite his efforts to shake it off, the chemist must assume his fair share of the responsibility for the social impact of his science. Rather than be saddled with this responsibility by a benevolent bureaucracy, his only alternative is to take a more active part in the affairs of government in order to be able to sit in on the partition of his destiny."

Aluminum Powder in Silicosis

THE Treatment of Silicosis by Aluminum Powder," by D. R. CROMBIE, M.D., C.M., J. L. BLAISDELL, B. SC., M.D., and G. MACPHERSON, M.A., in *Canad. M.A.J.*, 50:318-328, 1944, recording the results of a research investigation conducted in the Porcupine Gold Mines, Timmins, Ontario. Summary: "This investigation, which has now been in progress for a period of three years, is based upon the experimental work of Denny, Robson, and Irwin, who showed that the development of silicosis in animals could be prevented by the inhalation of small quantities of metallic aluminum powder. Following the publication of their observations in 1939, the treatment of human cases of silicosis was proposed in the hope that aluminum powder might act as a therapeutic agent in already established cases of this disease. A clinic was established at Timmins, Ontario, where a large number of silicotic subjects could be observed. In the selection of cases to be treated, only men who were still exposed to silica dust and were still employed in the mines were considered, and only those with uncomplicated silicosis with measurable pulmonary disability were chosen. Before treatment was instituted, each individual was carefully studied clinically and radiographically, and a large number of respiratory function tests were carried out. The latter included a study of total lung volume and pulmonary ratios as described by McCann and his co-workers. Pulmonary ventilation studies were also made, employing standard exercise tests on a calibrated bicycle ergometer. Selected cases were treated by the daily inhalation of fine aluminum

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powder, freshly ground from small aluminum pellets in a specially-constructed mill. A number of these powder mills were employed at various mines and treatment was usually given just before or following a shift. Treatment, administered daily, was begun by five minutes' inhalation through the powder mill. This period was gradually increased to 30 minutes daily, and was continued over periods in some cases of almost a year, a small number of men receiving approximately 300 treatments, the majority, however, receiving about 200. About 50 patients have received this form of therapy, 34 of whom have completed the course prescribed. Results of Treatment: This investigation has shown conclusively that the administration of aluminum powder in the manner described is entirely harmless and has proved definitely beneficial in a number of cases under our observation. Out of 34 cases studied, 19, or 55%, have shown clinical improvement, apparent chiefly in the lessening or disappearance of shortness of breath, cough, pain in the chest, and fatigue. A reduction in the incidence of colds and a gain in weight have also been observed in many of the cases. While 15 cases have remained stationary, it must be emphasized that they are no worse and their condition has not progressed, in spite of continuous employment in silica dust during the period of our investigation. Respiratory function tests, repeated at intervals of about every three months, have shown improvement in 12, or about one-third of the treated cases. While 22 remained stationary, they are no worse in spite of continued exposure to silica dust. A group of controls, untreated by aluminum, have shown progression of their disease in 66% of nine cases while under observation. Aluminum dust cannot be regarded in any sense as a 'cure' for silicosis insofar as restoring to normal lung tissue which has already undergone fibrotic change is concerned. Its use, however, would appear to be followed by beneficial results in a significant proportion of cases, chiefly in the amelioration of symptoms and in the increased capacity to work. In view of these findings and the experimental work of Denny, Robson and Irwin, we believe the inhalation of finely particulate aluminum powder offers every prospect of preventing the development of human silicosis."

The American Way

S. DE WITT CLOUGH, President, Abbott Laboratories, "The American Way," in *The Railroad Journal* (Health Number), August, 1944. Extract: "Sally Smith married quite young, in fact, she was only 19 when her first little girl arrived. Then there was a boy, but before the third baby was born, Bob, her husband, met with a serious automobile accident. He was laid up for months and in the meantime the medical and hospital bills were mounting higher and higher. Bob was depressed, and while Sally tried her best to appear cheerful, she was desperately worried about the future, for they hadn't been able to save much before the accident happened. They seemed to be at the end of their rope. She finally decided that as soon as she was able to do so she would start out to find a job. She had plenty of courage and her friends were kind. Surely, there must be some way out. Her mother came to care for the children, and a girl friend of Sally's, who worked in the Blood Plasma department at Abbott's, recommended her for a position. So, with Bob's consent, she went over to visit the Personnel Department of Abbott's and was asked to fill out an application blank. This was fully explained to her by friendly Fred Faassen, who interviewed all applicants and sometimes visited their homes. When her application was approved by Paul Heerens, Personnel Director, Sally was taken to the Medical Department where she was given a thorough physical examination by Dr. Hazel Hodges, who was not only a regularly employed plant physician, but who also acted as a counsellor and friend of the younger girl em ployees. Sally liked Doctor Hodges immediately and was impressed by her kindly interest not only in the girls themselves, but in their families. She asked Sally to call her at home in case of any family emergency. Having passed the physical and mental tests satisfactorily, Sally was then taken by the doctor back to the Personnel Office where she met Miss Bertha Zersen, who told her that Doctor Hodges was one of a medical staff of four doctors who, with the assistance of their registered nurses, spent most of their time giving physical

—Continued on page 1010.

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With which are consolidated "The Industrial Doctor" and "International Journal of Medicine and Surgery."

The Science, the Law and the Economics of Industrial Health

Volume 13 December, 1944 Number 12

Veteran Placement

—As Viewed by an Industrial Physician—

HAROLD B. DYE, M.D.,
Chief Surgeon, Northrop Aircraft, Inc.,
Hawthorne, California

A PLACEMENT program, by which veterans of this war, particularly those with physical handicaps, may be intelligently moved into industry, has been developed at Northrop Aircraft, Inc., producers of the Black Widow P-61 night fighter. So favorably has this program been received that it promises to serve as a model in many other industries throughout the country.

We feel, at Northrop, that the employment of war casualties is a most important undertaking, and that upon the efforts of industry in this field will depend the future of hundreds of thousands of handicapped servicemen when they are discharged from the fighting forces.

The Northrop placement program begins at Birmingham General hospital at Van Nuys, California, where the company has established an airplane production department, known as Department No. 99. It contains machines, tools and all equipment necessary for light metal shop work.

Convalescents, nearly all of whom are overseas casualties, are given a short training course and then start on actual production of Black Widow parts, for which they are paid standard shop rates. When these men are discharged for return to civilian life, they are encouraged to take employment at the main Northrop plant.

To discuss this program from the viewpoint of an industrial physician is the purpose of this article.

SINCE the beginning of the war over a million men have been discharged from the Armed Services. These men, prior to induction, were from every social and economic stratum of society and were engaged in every form of activity, from the most menial labor to the highest skilled professions. Many of the veterans will wish to return to their former occupations. Others, because of special training received while in the Army or Navy, will prefer to make use of this special training in selecting civilian work. Still others may desire to try new fields of endeavor regardless of past experiences or special training. However, there are several things that may alter these preferences or desires.

Governmental agencies and private industry have shown commendable interest in the proper placement of discharged veterans. Because of a shortage of manpower in essential industries as many as possible are being directed toward employment in these vital wartime jobs and industry is attempting to absorb them in a satisfactory manner. The physically fit, usually over age for the armed services, find no difficulty in locating work. However, there are a majority of those being discharged who receive their discharge because of physical or mental incapacity, sufficient in degree to make them unsatisfactory as fighting men. The problem of intelligently and satisfactorily placing these men is not simple and depends upon a clear understanding of the disabilities either physical or mental, and the limitations which must be placed upon them owing to their disabilities.

The disabled veteran falls into one of two categories, he is either physically disabled or mentally disabled. It is possible that there is a combination of the two. In the average or larger industrial plants there are such diversified activities that the physically disabled can usually be placed at work which is not beyond his physical capacity. The heart case can be given sedentary work, the man with missing members can be placed on work suited to his special limitations. It is seldom that a man with a physical handicap cannot be given some type of work, regardless of the degree of physical disability. At Northrop Aircraft, Inc., a placement program has been initiated for the purpose of placing the physically handicapped. At the time of his pre-employment interview and physical examination the veteran is assigned to a job in keeping with his physical capacity and past experiences. At this time his personnel folder is marked and a work-limitation form completed which instructs the department supervisor not to transfer him to other work without the approval of the veteran coordinator, the safety engineer and the medical department. This assures the veteran of being placed on work he can do and keeping him on that job until his physical condition is such that he can be safely moved to some other type of work. This appears to be a satisfactory program for the physically handicapped.

The more difficult problem is the placement of those veterans who have been discharged because of a mental disorder, usually a war neurosis, with the various manifestations of this disorder, hysteria, anxiety, amnesia and/or compulsions. Because of the very nature of the disability they do not make easy adjustment to the pressure of high speed production in an industrial plant, with its associated noise and confusion.

It would seem that the transition from an Army or Navy hospital to an industrial plant is too sudden and too severe; there should be some intermediate step on the road to recovery.

THE following cases are offered as examples of improper placement. George was a marine, saw service at Guadalcanal but during the campaign developed a war neurosis. After six months in a Navy hospital he was discharged. He applied for work at Northrop Aircraft and was hired and, because he was a former sheet metal worker, was placed in that department at his request. During his pre-employment interview an airplane went over the office and George went under the desk. He came up with a sheepish grin and remarked that he still was a little nervous when he heard planes, but he was sure that when he worked on them his nervousness would disappear. George went to work in the sheet metal department. He was not too far away from an assembly line. We soon found that the sound of a rivet gun was to George the sound of a Jap machine gun and the planes taking off the flight field were Jap planes and either one sent him under the work bench. After two days of work George didn't come out from under his work bench with a grin on his face; he shook with real fear, his face was covered with cold perspiration. With repeated states of anxiety he was unable to continue with his work.

After a few days off he was back to try it again with less than an hour of work before he went home, and permanently, depressed and beaten by the experience.

He was no doubt farther from recovery than when he left the hospital.

BILL had been in the Navy somewhere in the Pacific where the going was hot and tough. He was assigned to duty below deck, so the only way he could tell how close the Jap planes were was by the sound of the ship's guns. The farther away, the bigger the guns. He heard only machine gun fire when a bomb struck the bow of the ship. Bill came on deck to find the bow of the ship gone and over a hundred of his buddies killed or wounded. His nervous system couldn't stand the strain, and he spent several months in a Navy hospital after which he was discharged. After several attempts to find work he was hired by Northrop. He was anxious to build airplanes. The will to work was there, but he could not work under the noise and pressure of a production line. To him rivet guns were machine guns and overhead planes were Jap dive bombers. He was transferred from production to the receiving department, where he could be outside and away from the noise. He worked for a few days and then failed to report. When he did appear it was found that he had been in a hospital because of amnesia.

He again attempted to work, but he spent most of his working time in the plant hospital because of fainting and collapse on the job. He finally terminated, certainly no better and probably worse than when he started to work.

IN THE case of veterans discharged because of a mental disorder, their placement in industrial plants immediately after discharge from a hospital does not give them sufficient time to make the necessary adjustments. In the less severe cases locating the men on farms, dairies, orchards and other outside work, especially when past experience fits them for such vocations, is practicable and eliminates the exposure to the noise, confusion and pressure of the industrial plant.

These men should be under the supervision of a psychiatrist in order that their emotional lapses can be studied and treated. The majority of them will soon fall into a regular routine and recover from their mental disability if they are not placed where the emotional strain is too great.

The more severe mental cases discharged from Army or Navy hospitals do not easily fit into any definite organized plan for rehabilitation. When discharged from the Armed Services they attempt to resume their former occupation or to seek other work, not realizing that they are not psychologically equipped for such work. They still need careful supervision and direction with specialized psychiatric care. As a solution to this problem I offer the following suggestion.

It appears that camps, similar in their organization and function to the Civilian Conservation Corps, could be established for the care of the mentally disabled veterans.

There they could work under the direction of the Armed Service, with military personnel in charge of the camps, doing soil conservation, reforestation, other work under the Forestry Service, and work under the National Park Service. The veterans would live under a semi-military environment, and on the staff would be a qualified psychiatrist and physician for the purpose of making frequent psychiatric and medical examinations of the veterans. The work for the men would not be too strenuous, would be healthful, and the transition from military to civilian life would be gradual, as would be the change from the protective life of a hospital to the independent life of a civilian.

When able to resume the responsibilities of civilian life, as determined by their behavior and reaction in camp as shown by physical and psychiatric study, the veterans could be given their final discharge.

IN MY opinion, the rehabilitation program for discharged veterans is not one of giving them adequate medical or psychiatric care in a hospital and upon recovery or convalescence discharging them to find, through their own resources, suitable work regardless of their remaining physical or mental defect. The U. S. Employment Service is of assistance in finding work for veterans, but it is not able to approach the subject from the standpoint of specialized work for the physically and mentally handicapped. At the Birmingham hospital, at Van Nuys, California, the Northrop company has established a training program which is a big step in the right direction. Convalescent patients, at regular wages, are trained in aircraft production work. Upon recovery the veteran who is discharged is adjusted to a special type of work and readily fits into this work. This is primarily for the physically handicapped or injured. The same basic plan could be worked out for the mentally handicapped.

Agencies should be established in connection with hospitals or the camps discussed above, to assure a round peg being placed in a round hole.

Os Calcis Fractures

ROGER W. POBORSKY, M.D.,
Medical Director, Electro-Motive Division,
General Motors Corporation,
Chicago

IN TREATING fractures of the calcaneus, the most important thing is good x-rays. Lateral and anterior-posterior plates have their place, but, above all, an axial x-ray or the "os calcis view." The position of the foot for taking an axial x-ray is as follows: the heel and the back of the leg lie upon the x-ray film; the patient holds the foot in dorsiflexion by a bandage; the axis of the x-ray is directed at an angle of 45° toward the front of the os calcis.

After a careful clinical examination for tenderness, swelling, discoloration, ecchymosis, etc., and a good history of the accident aided by the proper x-rays, one is in a position to proceed with the necessary reduction and treatment.

Various men have various classifications for treatment.

Lorenz Bohler classifies these in eight groups.

1. Fractures of upper part of tuberosity, so-called duck's-bill fracture; 0.5%.

2. Fracture of the medial part of the tuberosity with or without displacement; here an axial view is imperative; 13%.

3. Fractures of the sustentaculum tali alone; here again an axial view is imperative; 4%.

4. Fractures of the body calcaneous without displacement of the joint surfaces articulating with the talus; the axial view is imperative; 25%.

5. Fracture of the body with displacement of the lateral parts of the posterior articulation with the talus; 30%.

6. Fracture of the body with displacement of the whole of the posterior surface articulating with the talus; a wide space is seen in the lateral x-ray between the posterior part of the talus and the calcaneous; again axial x-rays are imperative; 3%.

7. Fracture of the body with displacement of the lateral portion of the posterior articular surface, with subluxation between head of talus and navicular and between the front of the calcaneous and cuboid; the posterior process of the talus is sometimes broken off; 12%.

8. Fractures of the body with crushing of the anterior portion and dislocation of this from the cuboid; 11%.

Now, what does this classification mean? To me it means confusion, especially to follow such a classification for treatment.

Group 1. Bohler, in brief: Novocaine relaxes tendo Achilles, bends knee right angle, plantar flexes foot; cast.

Group 2. Unpadded cast for six weeks.

Group 3. Foot in maximi dorsi flexium. Pin driven through upper posterior angle of tuber calcanei. The pin should be placed 2-3 cm. farther back than when it is usually done in a fractured leg. If the pin is placed too far forward, it does not have good purchase power, and, if infection occurs, it may spread into the ankle joint. If the foot is not dorsi flexed when the pin is inserted, the later treatment will cause great tension of the skin and the latter will rupture. To reduce the fracture one must use a rotating stirrup because traction has to be made in two different planes. Another pin is driven 3-4 fingers' breadths above the point of the medial malleolus parallel to the pin in the heel. In the placing of the pins, the position of foot is very important for a good result.

Group 4 has another method, Group 5 another, and Group 6 still another, and so on until, if we try to adhere to any, such procedure becomes a nightmare, and the average fracture man wishes that he could be spared the grief of such fracture patients.

Watson Jones again classifies his calcaneus fractures into three groups: First group—three divisions; second group—two divisions; and third group—three divisions—again complicating the treatment to such a degree that one again wishes to leave the fractures to others.

IN MY EXPERIENCE, of 25 to 30 such fractures, I have found that fractures of the os calcis can receive successful treatment by the following methods:

First, no pin. As soon as possible following the injury and diagnosis of os calcis fracture, the patient is put to sleep under deep anesthesia (general). The knee is dropped over the edge of operating table, similar to the position of removing semilunar cartilages. The os calcis is then moulded with the bare hands clasped together in the same procedure as the Bahler os calcis clamp, the widening of the os calcis thus being reduced. This can be done much more easily than one expects, especially after being used to the clamp. Then the foot is put in extreme plantar flexion, in this way bringing the distal fragment or fragments up to the proximal fragment or fragments, instead of trying to pull the proximal to the distal against the pull of the tendon Achilles. A stockinette is applied, a circular cast put on from the toes to just above the knee, and the foot is held in extreme plantar flexion until the cast is completely dried. X-rays are then taken, the cast is left on for two weeks, and then a small ribbon of plaster is cut from the cast so that it may be tightened or reinforced with more plaster. In one month, the cast is removed and the foot put up in right angle, and a new cast is applied again for two months. To date, I have seen no drop foot, and the results have been excellent.

CASE No. 1. C. L., employee of an industrial plant. On December 2, 1942, painter ladder slipped, he fell to the ground, landing on his feet. Fell about six feet, injuring left foot. Taken to hospital. X-rayed os calcis and lumbar vetebrae. It is always wise, in this type of injury, to x-ray the lumbar spine because a compressed fracture of the lumbar vertebrae is not uncommon. The x-rays were negative, except for left os calcis which showed an extensive comminution. The normal tuberosity angle had been obliterated.

Under general anesthesia, as described, the os calcis was moulded, the foot hyperextended and a cast applied.

The x-ray post-reduction film, showed the posterior fragment of the fractured os calcis still elevated, which obliterated the normal tuberosity angle. On December 3, 1942, under general anesthetic, another attempt at reduction was tried. The x-ray showed fragments in the fractured os calcis now in satisfactory position and alignment. The normal tuberosity angle was almost completely restored.

The patient left the hospital December 5, 1942; returned to sitting position December 12, 1942; regular occupation, April 15, 1943; total permanency—15%.

CASE No. 2, railroad employee.

On 3/2/43 this patient fell out of a signal tower, landing on his feet. X-rays of the heel and lumbar spine revealed an extensive comminution of right os calcis, with considerable straightening of the normal tuberosity angle, and elevation of the distal fragment.

On 3/8/43, six days later, under general anesthetic, moulding and hyperflexion of the foot were done and a circular cast applied.

Presented at the Fifth Annual Meeting of the AMBULATORY FRACTURE ASSOCIATION, Chicago, October 13, 1944.

On 3/8/43 the x-ray showed a satisfactory reduction; the normal tuberosity angle had been restored.

On 3/9/43, after the application of a cast, the position and alignment of fragment in the right os calcis remained satisfactory.

On 4/19/43 the x-ray showed the fracture lines to have almost completely disappeared; there was some decalcification of bone.

On 6/3/43 the fracture lines of the right os calcis had disappeared as the result of healing; there was marked decalcification of all bones, due to disuse.

On 9/1/43 the patient returned to the duties of his regular occupation.

IT HAS been found in cases of several days' duration, unreduced, or in extremely large individuals, that the above method may fail. Then we use the one-, two-, or three-pin method of skeletal fixation. Pin No. 1 is applied in the proximal fragment of the os calcis. The second pin is applied 2-3 cm. above the internal malleolus. The third pin may be applied about two inches above the second pin, or it may be applied parallel to and through the base of the metatarsals. The three pins form a tripod and should be equal distances apart. Then by traction, the proximal fragment is pulled down and back.

After reduction, the pins may be incorporated in plaster or rods.

CASE No. 3. A. H., a boiler maker, working for a railroad. On 6/29/44 this patient slipped and fell on his left heel. He was taken to the Berwyn hospital where an x-ray examination showed an extensive comminution of the left os calcis, with the tuberosity angle completely obliterated. The A.P. view showed considerable medial rotation of the large posterior fragment. A pin was inserted in the proximal fragment, and reduction attempted.

On 7/5/44 x-ray showed no evidence of material change in position or alignment of the major fragments in the fractured os calcis after insertion of the pin.

On 7/4/44 three-pin traction was applied; the x-ray showed considerable improvement in the fragment; the tuberosity was somewhat obliterated.

On 9/18/44 the pins were removed. The x-ray showed no change in the position of the fragments; there was considerable repair. Osteoporosis was shown, an Ace bandage was applied. Weight bearing began two weeks later.

Conclusions

IN RECENT or fresh os calcis fractures successful reduction may be obtained by the no-pin closed method as described.

2. In fractures of the os calcis of several days to 14 or 15 days pin traction is desirable.

3. In cases of pin traction, the two- or preferably the three-pin, method is the method of choice instead of the one-pin method, because traction and counter traction are more easily and satisfactorily obtainable.

Tuberculosis Case Finding

—Mass X-Ray Surveys in Industry by the California Tuberculosis and Health Association—

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Publicity Director

THERE is still plenty of "gold in them thar hills" of California but placer miners are no longer to be found trying their luck at every bend of every meandering stream. The search is now carried on along scientific lines in areas in which gold is likely to be found in quantities justifying the search and the subsequent mining operations.

Likewise there is still plenty of tuberculosis in California, but with the death rate reduced more than 50% in the last 15 years, hit and miss placer methods of case finding are not sufficiently remunerative to justify themselves. Instead tuberculosis workers are plumbing the identified reservoirs of infection of which the largest is industry.

The California Tuberculosis and Health Association and its 61 federated local organizations comprise the greatest tuberculosis case-finding agency in the state. Between January 1 and October 1, 1944, more than 90,000 x-ray films were taken by the federation equipment which includes four 4 x 5-inch film mobile units, six 35 mm. portable or mobile units, 11 fluoroscopes (some portable) and two 14 x 17 machines. Approximately one-third of this equipment was delivered only within the past four months of the January-October period, so that the number of films shown is no indication of the potential number that will be taken over a given period. Supported last year by a Christmas Seal sale of more than a million dollars, the California federation is satisfied that its program holds public confidence and endorsement. On this premise half a dozen other locals have ordered x-ray equipment and more will join the list after the 1944 Seal sale.

In nearly all original activities the state association, also termed the "state office," formulates a pattern which each local may accept, modify or reject at its option. To understand California's approach to case-finding it is necessary to study the pattern set by the association's case-finding committee and the activities associated with the use of the state office's mobile unit.

When the state association ordered its unit in 1942 it was cognizant of the factors involved in successfully conducting mass surveys in California. A bare glance at the map will reveal the No. 1 challenge. Divided by three mountain ranges, covering an area of 155,000 square miles and with its two principal cities nearly 500 miles apart, California hurls a geographical javelin at anyone thinking in terms of a statewide project. In respect to mass survey, industry unintentionally offered the second challenge. Industrial sections in the main are scattered along the coast from San Diego to San Francisco, but in addition there are pockets of them in all but the mountainous

areas which could not be ignored. Then too, the employees of the industries represented every section of the United States, every standard of living, and at least four racial groups. It carried more than its complement of older persons, many of whom never heard of the germ theory or, if they did, did not subscribe to it.

On the debit side, however, were encouraging factors. Every county in the state was represented by a voluntary tuberculosis association. More than 25 of these employed full-time executive secretaries and a number had finances, personnel and equipment sufficient to conduct their own surveys with little or no assistance from the state association.

In the summer of 1943 a case-finding director who was also an expert technician was employed and five months later the long-awaited mobile unit was delivered in the form of a truck of interstate bus proportions. The truck housed a photoroentgen unit for the taking of 4 x 5 inch films, a complete film-developing laboratory, three dressing compartments and storage cabinets.

The association's case-finding committee recommended that the truck would be rented on a per diem plus a cost per film basis to the local associations, and that the local would select the type of project which in its opinion seemed most desirable. The committee recognized the need for health education and recommended that the publicity department of the state association prepare a publicity kit to be used in conjunction with industrial surveys. It is significant that the majority of local associations using the state unit have selected industrial surveys for their initial projects. After taking nearly 30,000 films it was determined that the production cost to the locals averaged 25.3 cents per film.

The publicity kit recognized a four-fold justification for the industrial survey:

1. To find tuberculosis in its early stages.
2. To educate industrial employees and their families to the need of periodic x-rays.
3. To stimulate in management a desire for more complete industrial hygiene, including eventual ownership and operation of its own roentgenographic equipment.
4. To accelerate community interest in tuberculosis control.

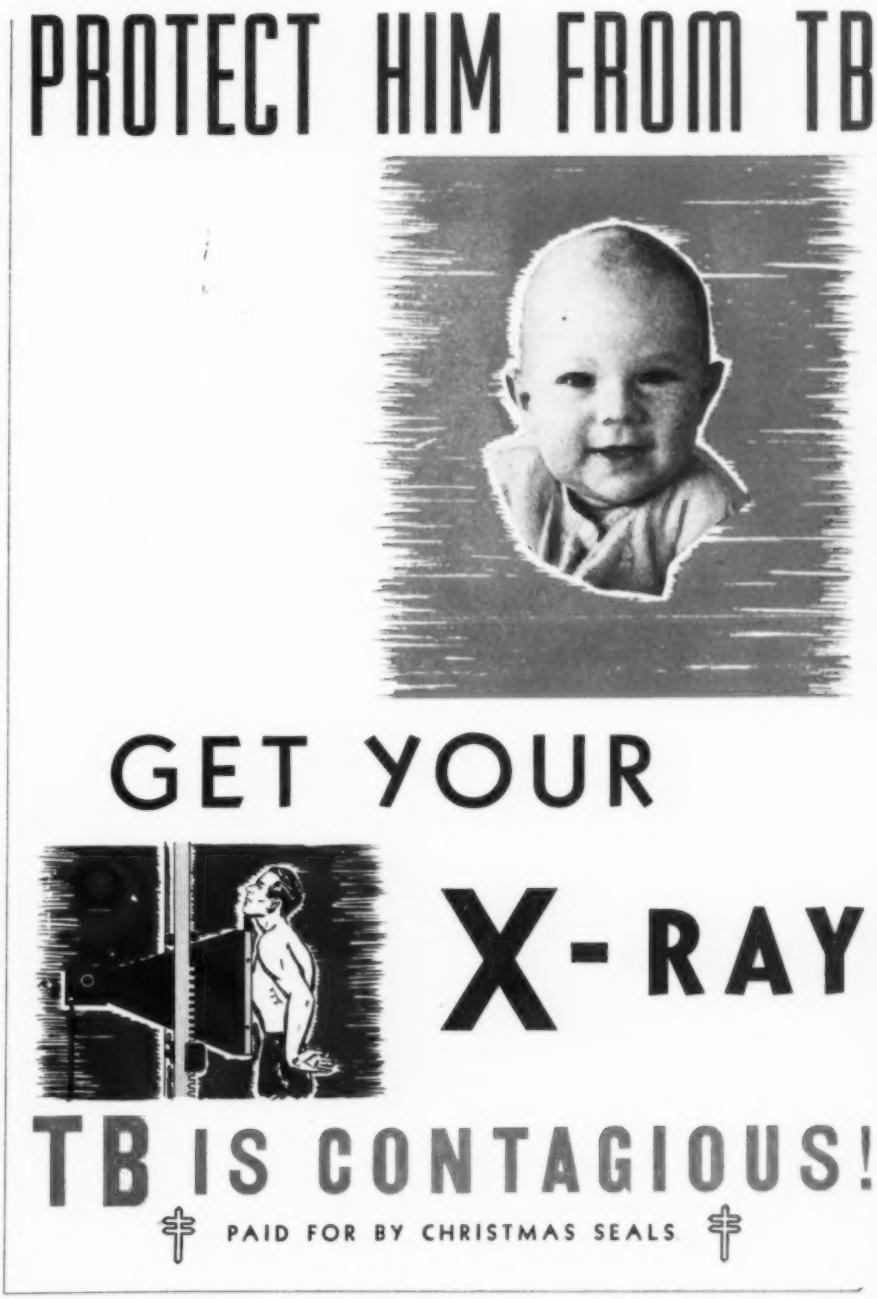
The plan in the kit, followed out in the main, suggests that local association representatives first contact city or county health officers for endorsement or recommendation of a mass survey project.

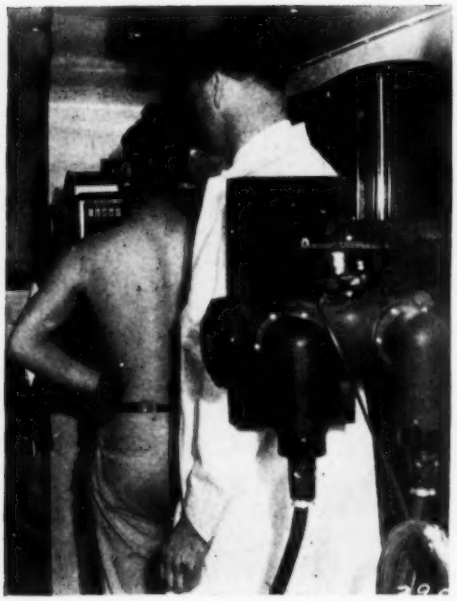
After selection of the individual industry, the next step is consultation with management and labor in the plant. In a few instances it has been necessary to convince management that survey results would not become the basis for compensation suits; labor, that findings would not be accessible for purposes of discriminatory action against individual employees. That such objections were seldom voiced testified that both management and labor have absorbed modern conceptions of public health.

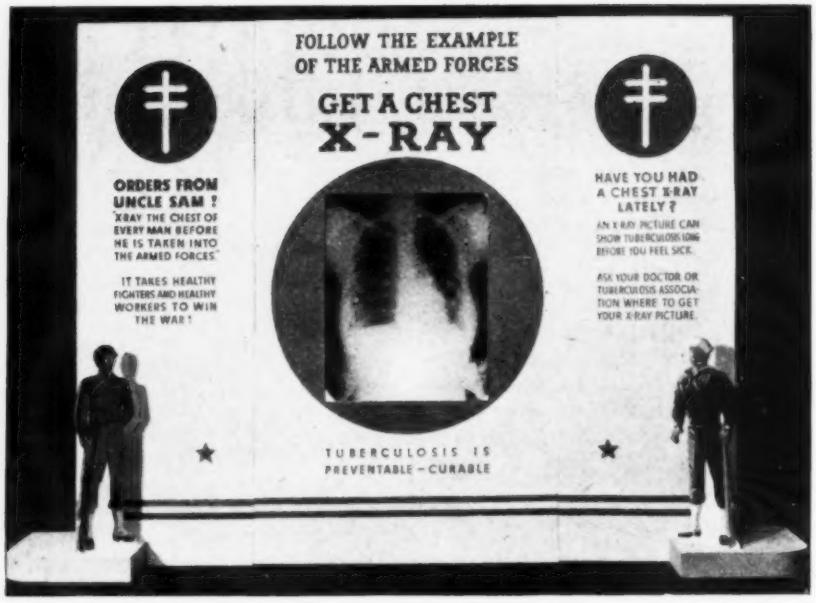
A more frequently heard objection was that the survey would interfere with production schedules. Experimental surveys conducted before the unit officially took to the road, however, demonstrated that if employees were brought to the unit in relays of small groups production would not be affected. In cases in which the plant covered a large area and consisted of numerous shops, bus service between the shop and the unit was made available. The personnel manager of one plant participating in one of the early surveys concluded that instead of retarding production the brief recess and relaxation afforded by the x-raying actually had stimulated it.

After the date of the survey is determined, publicity and health education material is aimed in two directions: in the community generally and inside the plant. Public attention is focused on the survey through news releases, radio programs, display window exhibits and slides for motion picture theaters.

Inside the plant, foremen, stew-







ards and others respected as leaders are invited to special meetings featuring carefully selected speakers and movies on tuberculosis. Posters are secured on bulletin boards, leaflets are distributed at least twice, and employee and union publications are supplied with educational copy.

As the day of the opening of the survey approaches, registration cards are distributed and short announcements are hammered over the public address system.

Either when the employee enters or leaves the x-ray truck he is given a letter explaining the purpose of the survey. The letter informs him that the project is a screening process and that it is not to be considered diagnostic in purpose; that only the individual concerned will receive a report of the film reading (sent to his home through the mail) except in cases of such positive findings in which state law requires that a copy be sent to the health department; that regardless of results he should plan to have a chest film at least once a year and that he should sponsor x-rays for the remainder of his family and for his friends. Heart abnormalities revealed by the x-ray are recognized in the report.

It is obvious that all of the suggestions offered in the kit cannot be applied in any one survey. That a sufficient number have been available in each instance is demonstrated by figures which show that from 50 to 90% of the employees have participated in every survey for an average of more than 70%. Educational methods are the only ones used in soliciting employee participation. It is recognized that while compulsion and high pressure methods would bring a greater number to the truck, they would not stimulate health education nor tend to motivate the individual receiving a positive report in carrying out the recommendations noted.

To synchronize health education and respect for the recommendations on post-survey reports to the speed of the mobile unit's flashing shutter is sufficient challenge without engendering ill will by compulsory examination methods. The local Los Angeles County Association, operating a unit similar to that of the state association, recently reported on a follow-up study of 30 plants in which it had previously taken a total of 7,930 films. It found that out of 285 recommendations made to persons suspected of having tuberculosis, only 118 had been carried out. As the result of re-examination and complete diagnosis, 16 active cases of tuberculosis and eight heart cases (not under medical supervision previously) were found to be in need of immediate care. It was estimated that among those not re-examined about 19 tuberculosis and 16 heart cases were missed.

The conclusion was "that the work is feasible, that it is acceptable to the public, that beneficial results are evident. Further efficacy of the program (industrial surveys) will depend on the application of the knowledge that has been gained in experience."

Before the state association's mobile unit took to the road in January, 1944, the case-finding committee recommended that the trip be considered a demonstration and that no effort be made to exhaust the mass survey possibilities in any one county. One- and two-day stands were to be in order, with the maximum stay about a week. From San Francisco, home of the state office, the truck crossed the Bay Bridge and swung down the San Joaquin valley with San Diego the terminus. It returned along the coast, with occasional digressions, to arrive in San Francisco during August.

From there it swung northward, anticipating that its first statewide tour would end in December.

Frequent interruption for travel necessarily curtailed over-all film production, but individual stands demonstrated that when proper advance arrangements had been effected, 100 x-rays or even more an hour could be taken. The record was established at the Chicago Bridge and Iron Works, Eureka. Between the hours of 8:00 A.M. and 7:00 P.M. (a period involving three work shifts) 1,269 men and women employees were given x-rays. Advance educational work had been sufficiently effective to convince many of the employees who could not be accommodated during their working hours that they could well afford to wait on their own time after shifts for x-ray examination. Coordination of activities was responsible for the speed record. Registration had been held for several days before the truck arrived. On the day of the project men and women were sent to the unit in alternating groups of 20 by "feeders" who were kept apprised of the progress of the x-raying.

A study of 23,834 films taken in 10 counties by the unit showed that 21,492 were essentially negative. Of the remainder 638, or 2.61%, films indicated reinfection type of tuberculosis. These were further classified as follows: suspicious, 391; minimal, 136; moderate-

ly advanced, 67; far advanced, 44.

Regardless of any other conclusion that may be reached concerning the value of mass surveys in California they have reiterated one inescapable fact proved elsewhere: the survey is the one means of finding tuberculosis in its early stages. For years prior to the development of miniature x-ray equipment, the organized tuberculosis movement has preached the gospel of early diagnosis and each April conducted a nationwide campaign for that purpose. Yet as recent a study as that of the year 1943-44 among Los Angeles City and County health clinics showed that only 18% of 834 cases reported through those channels were in the minimal stage. More than 60% of cases found through various mass surveys, however, have been classified as minimal.

Incidence of Typhoid Fever

—In a Population Exposed to a Contaminated Industrial Water Supply—

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DURING an outbreak of typhoid fever a search for missed cases will almost invariably bring to light mild infections which had previously escaped detection. That missed cases of this character may comprise a considerable proportion of all clinical infections is suggested by the number of chronic typhoid carriers who fail to give a history of previous disease.[1, 2] Of similar interest is the finding of E. Typhosa in the stools of apparently healthy individuals who have been exposed to infection. Examination of the feces of case and carrier contacts[3] and of individuals living in endemic areas[2] has shown that some persons may harbor and excrete the organism for short periods of time without showing evidence of clinical disease. Little evidence is available, however, to indicate the frequency with which mild and asymptomatic cases occur, owing to a lack of intensive studies which include all persons exposed to a known source of infection.

During January and February, 1942, an outbreak of typhoid fever in a South Georgia mill village offered an opportunity to observe the occurrence of cases of varying severity in an entire group of persons known to have been exposed to a common source of infection. The outbreak was limited to persons who drank the village water. These included residents of the village, persons who lived nearby and worked in the local cotton mill, and visitors. There was no evidence of any other common source of infection.

The water and sewage systems in the village had been installed by the owners of the local industry. The cotton mill and all homes in the village were supplied with water from a well 215 feet deep which had been put into operation in October, 1941. Prior to that time water had been supplied from a well 700 feet deep. Sewage was discharged into a lime sink about 300 yards distant from the new well. From that point it flowed by vertical drainage through a drilled shaft into the underground limestone stratum. Presumably, sewage from this source contaminated the new well. Examination of the water at the time of investigation showed evidence of gross pollution. On February 6 chlorination of the water was begun and on February 8 the well was closed and water from a nearby city was substituted.

The earliest evidence suggesting contamination of the water supply was the occurrence of a large number of cases of acute gastroenteritis during the last week in December, 1941, and the first week in January, 1942. During the subsequent investigation, 400 individuals were questioned with respect to such attack and 296, or 74.0%, gave a positive history.

The first case of typhoid was reported on January 24. The dates of onset of the first and last cases were January 12 and February 17, respectively. Apparently, all infections were primary in origin. In households with multiple cases the dates of onset were so close together as to indicate a common source of infection. The evidence suggests that the water was contaminated more or less continuously from the latter part of December until the well was closed. For the purposes of this study all persons who drank the water during the period of December 20 to February 7 were considered to have been exposed.

Investigation revealed that 721 persons were known to have drunk the water during the period under consideration. Of these, 542 were residents of the village at the time of investigation, 121 lived nearby and worked in the cotton mill and 58 had left the vicinity. Of the latter group, 38 were successfully followed while 20 were lost from observation. This report deals with the 701 individuals who remained under observation.

With a view to obtaining a complete roster of all cases of typhoid, a house-to-house canvass was made of all homes in the village. Blood and stool specimens, repeated if necessary, were obtained from all persons showing symptoms of illness. In the case of persons without evidence of disease, a single stool specimen was obtained. A similar procedure was followed in the case of those who worked in the village and those who had removed from the vicinity. Exceptions were made with respect to blood cultures in patients who were convalescing at the time of investigation and, also, in a few patients with symptoms so mild that the fact of their having clinical disease was not recognized at the time of the first interview. Altogether, blood specimens were obtained from 58 individuals and stool specimens from 642. Failure to obtain specimens was experienced in the case of 59 individuals, none of whom showed any evidence of disease.

Clinical and Laboratory Findings

E TYPHOSA was recovered from 80 individuals. Typing of the organism by the application of bacteriophage showed all cases to be of type A. Six additional persons showed symptoms suggestive of mild typhoid but, in each case, attempts to recover the organism were unsuccessful. These individuals are classed as not having had the disease.

Only two deaths occurred among the 80 persons from whom the organism was recovered, indicating that many of them experienced a mild infection. With a view to observing the frequency with which such mild infections occurred, cases were classified according to the severity of clinical symptoms. For this purpose, the duration of time spent in bed was used as an index of severity. The 80 cases were classified into one or another of the following groups:

Group I—Those who spent 10 days or more in bed.

Group II—Those who spent at least one day in bed but not more than nine days.

Group III—Those who were ambulatory at all times but who showed definite clinical symptoms.

Group IV—Those who were ambulatory and showed no evidence of disease.

This method of grouping is not wholly satisfactory

TABLE 1.
ATTACK RATES PER 1000 POPULATION BY AGE ACCORDING TO IMMUNIZATION STATUS

	Unvaccinated			Vaccinated			Total		
Age (Years)	No.	Cases	Rate	No.	Cases	Rate	No.	Cases	Rate
Under 5	74	7	94.5	1	0	0.0	75	7	93.3
5—14	84	20	238.0	83	6	72.2	167	26	155.6
15-29	161	18	111.8	52	2	38.4	213	20	93.8
30—44	127	9	70.8	28	0	0.0	155	9	58.0
45 and over	85	7	82.3	6	0	0.0	91	7	76.9
Total	531	61	114.8	170	8	47.0	701	69	98.4

since, in many cases, nursing instructions to patients served to prolong the period of bed rest. Nevertheless, it does provide an objective method for roughly separating the cases into groups of varying severity. The number of cases and deaths appearing in each group is shown below.

	No. Cases	No. Deaths
Group I	38	2
Group II	20	0
Group III	11	0
Group IV	11	0
Total	80	2

The cases which appear in Group I showed considerable variation with respect to severity of symptoms. About half of them could be classed as having mild to moderately severe typhoid. In these, symptoms lasted for about three to four weeks and peak temperatures ranged from 102° to 103° F. Not more than 18 or 19 patients in Group I showed symptoms of sufficient duration and severity as to resemble the classical textbook description of the disease.

In general, the cases appearing in Group II showed comparatively mild symptoms. Most of them were ambulatory much of the time. Peak temperatures were rarely above 102° and symptoms continued for about two to three weeks.

The patients in Group III showed very mild symptoms. For the most part they complained only of malaise and ran an afternoon temperature of a degree or two for a period of 10 to 14 days. In a few instances clinical symptoms were not observed at the time of the initial interview, and only continued observation following the recovery of the organism from the stool revealed the presence of a temperature together with mild subjective symptoms.

Those appearing in Group IV showed no evidence of disease and, in each case, a careful inquiry failed to elicit any history of recent illness suggestive of typhoid.

In view of the many mild infections which occurred, it appears likely that under ordinary circumstances the number of missed cases may have been considerable. Some idea of what that figure might have been may be obtained by considering the manner in which the cases came to the attention of the study. Little more than one-half of the 69 patients with clinical symptoms saw fit to employ the services of a physician. Several others were discovered through the efforts of the local health authorities. During the subsequent house-to-house canvass, 23 additional cases were brought to light. At the same time the 11 asymptomatic infections were detected.

Attack Rates

FOR the purpose of computing attack rates the 11 cases without symptoms of illness were ignored. Excluding these, 69 clinical infections were observed among the 701 persons appearing in the study.

Consideration was given to the possible influence of typhoid vaccination on the attack rates. From available immunization records and from histories the immunization status of the exposed population was determined. Of the total group, 170 had received typhoid vaccine during the three years (1939-41) preceding the outbreak. In Table 1 are shown the attack rates by age in the vaccinated and unvaccinated groups. The rates at various ages are not appreciably influenced by differences in sex and residence.

It is apparent that typhoid vaccination was effective in protecting against the disease. Under similar conditions of exposure, the unvaccinated group developed clinical infections at a rate significantly higher than that observed among the vaccinated.

In the five-to-14 year age group the rates are far above those observed at other ages. In this respect the findings differ materially from those usually reported.[4, 5] Ordinarily, the disease has been observed most commonly among "teen" age children and young adults. The high rate in this outbreak among children of five to 14 years of age may be explained, at least in part, on the basis of mild cases, which, ordinarily, may have been missed. Of the 26 cases appearing in this age group, 12 were discovered as a direct result of the house-to-house canvass. A few others came to the attention of the attending physician only because of the presence of a more severe case in the same household.

With respect to sex, attack rates were somewhat higher among males. Thirty-six cases of typhoid were observed among 306 males while 33 cases were observed among 395 females. Attack rates per 1,000 were 117.6 and 83.5 respectively. Higher rates among males were observed at all ages.

Attack rates were considerably higher among village residents than among non-residents who, presumably, drank less of the contaminated water. In the former group 59 cases were observed as compared with 10 in the latter. Attack rates per 1,000 for the two groups were 108.8 and 62.8 respectively. Correction for age reduced slightly the margin between the two rates but this, in turn, was offset by the relatively greater proportion of males in the non-resident group. A slightly higher percentage of residents had received typhoid vaccine.

The number of colored persons included in the study was too small to justify separate consideration.

Asymptomatic Cases

THE 11 cases classed as asymptomatic (Group IV) showed no clinical evidence of typhoid fever. In each instance the organism was recovered from the feces. Of the total group, nine proved to be only temporary carriers while two remained persistently positive. The past histories of the latter two individuals indicate that they were probably chronic carriers prior to the present outbreak. Of the nine transient carriers, seven were below the age of 25 years.

Following the recovery of the organism from these individuals, stool specimens were examined at intervals of about a week until three successive negative cultures were obtained or until the chronic nature of the carrier state became apparent. The nine tempo-

rary carriers became negative quite promptly. Only one positive culture was obtained from four of the carriers, two positives from three of them and four positives from each of the remaining two.

The survey of persons without evidence of disease required several weeks for the collection of stool specimens. Altogether, specimens were obtained from 572 apparently healthy individuals. Taking into account only the initial examinations, it was observed that all positive cultures were obtained during the early weeks of the investigation. Cultures made more than three weeks following the closing of the well (February 8) were uniformly negative. The results obtained according to date of collection are shown in Table 2.

TABLE 2.
RESULTS OF INITIAL STOOL EXAMINATIONS IN 570 PERSONS WITHOUT EVIDENCE OF DISEASE

Date Collection	Number Specimens	Positives	
		Number	Per Cent
Prior to February 8	38	1	2.6
February 8—February 14	82	3	3.6
February 15—February 21	116	4	3.4
February 22—February 28	113	1	0.8
March 1—March 7	101	0	0.0
After March 7	120	0	0.0
Total	570	9	1.5

The two chronic carriers are excluded from the tabulations since it is believed that they were carriers prior to the present outbreak.

The results obtained during successive weeks of the survey indicate that the carrier state in asymptomatic infections is of comparatively short duration. In this respect the results are in agreement with those obtained in the follow up of the temporary carriers.

Comment

THE results obtained in this study indicate that a substantial proportion of all clinical cases of typhoid fever fail to come to the attention of medical and public health authorities. In this outbreak one-third of the clinical infections came to light as a direct result of the house-to-house canvass. Several others had previously been discovered by the local health authorities. Without benefit of a search for missed cases it seems likely that more than one-third of the clinical infections would have escaped detection. Had these infections occurred sporadically over a considerable period of time, the number of missed cases may have been even greater.

Mild cases were observed most commonly among children of five-to-14 years of age. At the same time, this group provided the highest rate of clinical infections. Although the disease has been observed most commonly in the past among "teen" age children and young adults, the results of this survey indicate that under similar conditions of exposure clinical disease occurs with greatest frequency among children in the five-to-14 year age group. If so, a high proportion of these cases is missed.

In the survey of apparently healthy individuals, the results obtained during successive weeks of the investigation indicate that the observed number of transient carriers would have been materially greater had it been possible to conclude the study more promptly. During the early weeks of the survey more than 3% of apparently healthy persons were found to be excreting the organism in the feces, while during the latter weeks all specimens were negative. Presumably, too, the percentage of positives would have been appreciably greater had it been possible to examine multiple specimens from each individual. Although cases of this nature may have little clinical significance, they are potentially capable of spreading the infection.

The occasional occurrence of outbreaks of typhoid fever serves to emphasize the necessity for maintaining the barriers against the spread of the infection. The marked decline in the death rate from the disease has not minimized the importance of good sanitation. In this instance, the water and sewage systems were installed and operated by the local industry. It would appear that physicians associated with industries of this type should share the responsibility for maintaining a safe water supply.

Summary and Conclusions

DURING a water-borne outbreak of typhoid fever, a house-to-house survey was made of the exposed population. Of 701 persons who drank the contaminated water, blood specimens were obtained from 58 and stool specimens from 642.

2. E. Typhosa was recovered from 80 individuals, 69 of whom showed clinical symptoms. Typing of the organism by the application of bacteriophage showed all cases to be of type A.

3. Most of the cases were mild in character and only about 25% of them resembled the classical description of typhoid fever.

4. The house-to-house canvass brought to light 23 mild infections which had previously escaped detection. Prior to the survey, several similar cases had been discovered by the local health authorities. If these findings are applicable generally, fully one-third to one-half of all clinical infections are missed.

5. The highest clinical attack rate and the greatest proportion of mild cases were observed among children of five to 14 years of age. Apparently, under similar conditions of exposure, clinical infections occur with greatest frequency among children of that age group but, ordinarily, a high proportion of them is missed.

6. E. Typhosa was recovered from the stools of 11 persons without symptoms of illness. Of these, nine were transient carriers.

7. Previous typhoid vaccination exerted an appreciable effect in protecting against the disease.

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The Use of Penicillin

—In Minor Surgical Infections—

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LITTLE has been said or written about the *local* use of penicillin, either topically, by injection or both, in the treatment of minor infections. The main reason for this probably is its lack of general availability and because of its extensive use in major conditions parenterally, as well as its topical use in major war wounds and infections. It has however, recently been stated that "it is unlikely that the injection of penicillin solution into soft tissue infections will offer any advantage over systemic treatment."[1] It must be remembered that systemic treatment is generally not indicated for soft tissue infections, especially if lo-

calized. Systemic therapy involves frequent intramuscular injections (every two to four hours), or continuous intravenous therapy with dosages ranging up to 100,000 or more Oxford units daily. Such treatment would certainly be unwarranted, wasteful, and expensive in minor infections, and is not to be recommended in the treatment of small local infections of the minor surgical type. Of course, in severe, or extensive, or systemic infections, parenteral therapy is today mandatory.

For local use, direct application of penicillin solutions containing from 250 to 500 Oxford units per cc. has been advised in more serious conditions as compound fractures, osteomyelitis, burns and mastoiditis. This is usually employed in addition to some systemic therapy. I have recently employed penicillin solution for local treatment of some surgical infections of minor type, by instillation and application. The solution used contained 500 Oxford units per cc. A 20-cc. vial containing 100,000 units when diluted with sterile isotonic solution of sodium chloride will have a volume of 200 cc. which, if employed in the manner to be described, will suffice for a large number of cases. When not being used, the solution must be kept refrigerated at below 10° C. In this way it is found to be still effective after eight weeks.

The method of treatment employed was as follows: Infected areas requiring incision were promptly incised and drained. Then 0.5 cc. to 1 cc. of penicillin solution was instilled into the incised wound or abscess cavity with an 18-gauge dull needle (point removed). One cc. was also applied to that area of gauze which was to contact the open wound (drainage site) when dressed. Wet dressings were forbidden where ordinarily advised, as this would dilute and wash away the penicillin. Dressings were changed in 48 hours. No case, including a post-nephrectomy wound, which had been draining for two weeks required more than two such treatments to stop the discharge and institute healing. The results were actually spectacular. Disability was reduced to a minimum and, in cases involving infection in the upper extremity, patients returned to work within 48 to 72 hours. No parenteral treatment was employed. Eighteen cases were treated by this method, and are tabulated below:

Lesion	Cases	Remarks
Infection of the foot (Plantar and interdigital)	2	Both cases were in diabetics. Cultures revealed Staph. aureus. Incision and drainage with immediate local penicillin treatment.
Abscess of forearm	3	One was diabetic. Treated as above.
Carbuncle of dorsum of hand	1	Patient a shipyard worker, returned to work in 24 hours. Staph. aureus on culture.
Paronychia	4	All Staph. aureus infections.
Abscess of finger (dorsum)	1	Strep. hemolyticus on culture. Cured in one treatment.
Abscess of leg (following abrasion)	2	One case Staph. aureus. One case Strep. hemolyticus with lymphangitis.
Felon	1	No culture taken.
Ingrown toenail	2	Granulation tissue was first curetted away.
Postoperative Wounds		
Nephrectomy	1	Had been draining two weeks.
Hysterectomy	1	Had been draining 10 days.

From the uniformly successful results obtained in these few cases, I feel that the local instillation and topical application of penicillin solution is of definite value in minor surgical conditions and especially will be of value in industrial injuries and infections where working man-hours are supremely important at present, and absenteeism due to such minor infections must be minimized. Further use of this method is encouraged.

Reference

1. Queries and Minor Notes, *J.A.M.A.*, 126:202, 1944.

The St. Clare Fracture Frame

—A Preliminary Report—

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CARL A. PETERSON, A.B., M.D., and
EVERETT CHAPMAN, A.B., M.S.

Since the period of the first world war the use of suspension and traction for the treatment of fractures of the long bones has engaged the attention of many men. A sufficient time has now elapsed to demonstrate the superiority of this principle of treatment over all others in selected cases.

There is no doubt that, by means of traction and suspension, deformity can be overcome and the early mobility of joints instituted, permitting earlier rehabilitation and shortening the period of disability.

The basic principle underlying the use of suspension and traction consists, in brief, of some form of overhead frame to support the limb to be suspended and a series of pulleys whereby direction of pulls can be applied to the limb through skin or skeletal traction.

Many workers have been discouraged by the cumbersomeness of the apparatus and the difficulties attending its use. The time consumed in putting up a frame and the delay in making adjustments during the period of convalescence have led many doctors to resort to other methods of treatment entirely.

In order to overcome some of the present objectionable features in the use of suspension and traction, the authors have developed the present frame at St. Clare's Hospital, New York City. In its development the effort has been made to eliminate many of the objections of the so-called Balkan frame.

Foundation

In view of the many kinds of beds to be accommodated, a survey resulted in the selection of the bed frame angles as the most suitable foundation for the frame. Bed angles vary in size. Their use for this purpose is complicated by the presence of the Gatch frame on the top leg of the angle.

However, the frame angles seem to be the most stable foundation. A clamp was designed which hooks over the top leg of the angle.

To take care of the variation of widths encountered, a retaining block was made adjustable so that the clamp would accommodate angles whose top legs varied from 1⅜ in. to 1¾ in. It is not entirely necessary to have this small retaining block fit tightly against the outer leg of the angle, although it is well to take advantage of the adjustment. Since the weight on the clamps is down, the retaining blocks serve to prevent the disen-

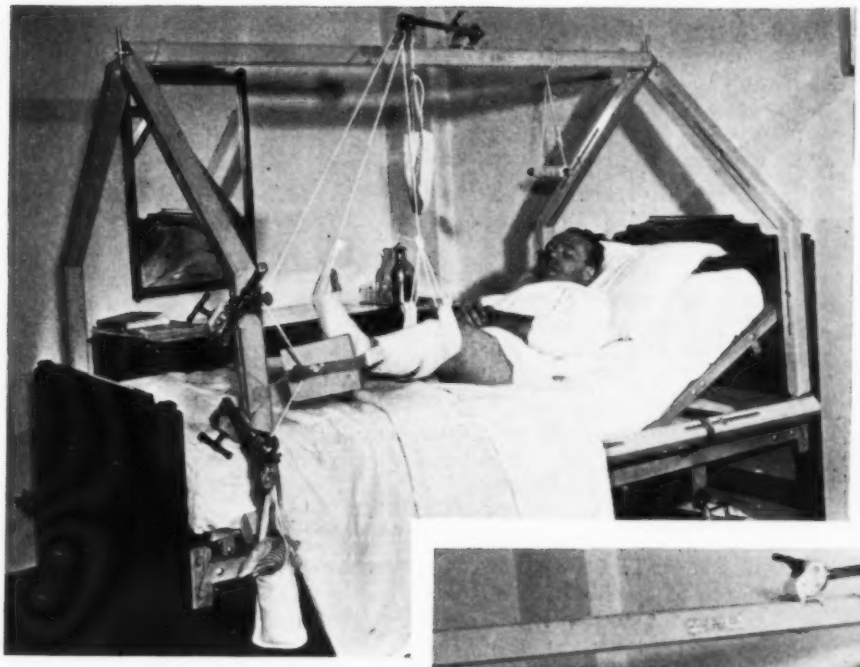

Fig. 1. The Frame used for Russell traction

gagement of the hook from the inner edge of the angle.

The clamps have considerable movement longitudinally to clear the various Gatch arrangements, but they are retained at the end so that they cannot slip off and become lost or misplaced. This philosophy has been embodied throughout the construction of the frame. Loose parts might be left on the beds when the frame is dismantled. The thought has been to require a minimum amount of effort and attention for the installation, erection and subsequent storing of the fracture frame.

The Frame

THE frame consists of three longitudinal rails and four bent uprights. The four bent uprights are alike. No thought is necessary selectively to locate these uprights during assembly. Two of the longitudinal rails are attached to the foundation angles of the bed, by means of the clamps which identify, by their presence, these lower side rails.

The cross section of these members is uniform, 2¼ in. square, with beveled edges. Slots 10 in. long, for the accommodation of the pulley arms, are distributed in many positions both on the longitudinal rails and the upright pieces. These slots are distributed so that the radius of action of an arm in one slot overlaps the radius of action of another arm placed in the next slot. A sketch shows the construction of the slot and the manner in which the pulley arms are inserted. Wood has been chosen for the material of the frame because it is light. Owing to the clamping action of the arm it is necessary to have a solid section to resist the clamping force which is the heart of the quick, flexible assembly.

The bed clamps with the side rails are slipped on to the bed angles. The bent uprights are inserted in slots in the ends of these

Fig. 2. Suspension and traction of the upper extremities. It is to be noted that no accessory apparatus is needed for securing abduction at any angle

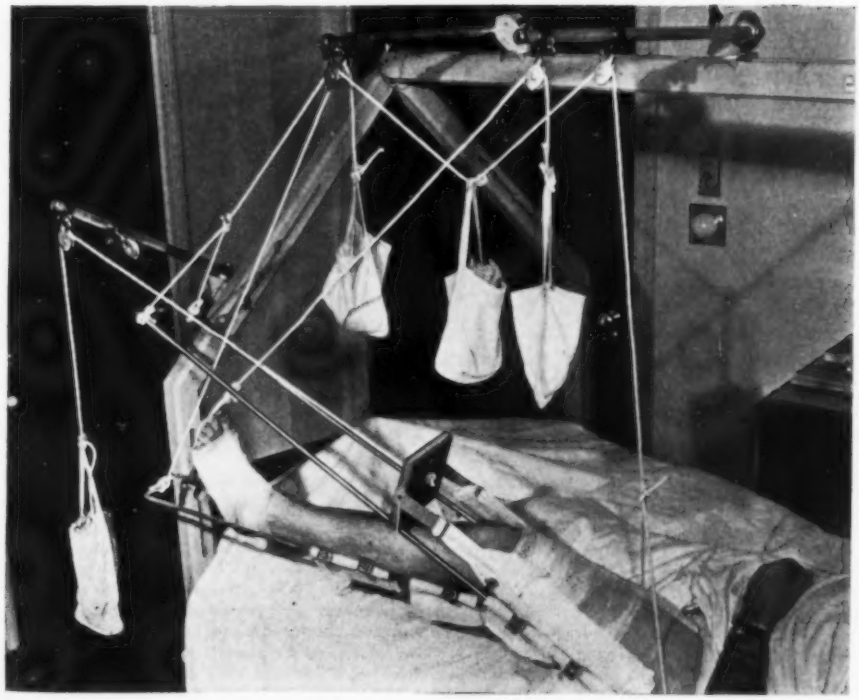

Fig. 3. Suspension and traction of the lower extremity using a Thomas splint. It is to be noted that no trolley is required and weight bags can be maintained high avoiding interference with the extremity

two lower rails. The steel insert in the upright piece has a notch cut into the lower end of it which engages a through bolt in the side rail so that perfect support is obtained. The slots are made purposely tight in the interest of rigidity.

After the four uprights are in position, the top rail steel insert is inserted through both slots in the steel insert in the bent uprights. Driving the tapered pin home completes the erection of the frame. The tapered pin is chained to the top rail so that it cannot get lost or be misplaced.

The total weight of the frame, including the bed clamps, is 38 pounds. There are no loose pieces to be lost. The entire frame assembly can be done in less than one minute on any of the usual beds.

Pulley Arms

THE pulley arm carries two pulleys and is mounted on a universal joint, so that the end of the arm will describe a sphere in space. The pulleys, slidable on the arm, can be located at any point within a sphere whose radius is 17 inches.

The operation of clamping the arm, once a pulley is located, is accomplished by a single handle. This handle engages one leg of a three-legged bolt. The other two legs then clamp the three motions necessary for such a flexible arrangement.

The torque resisting feature of this joint is accomplished by having two toothed stainless steel castings bite into a central block of hard birch. These arms are tested before shipment for 45 foot pounds torque. They have demonstrated their ability to hold this torque over a long period. There are 36 teeth on each casting. They bite into the birch block approximately 1/16 in. deep when the clamping handle is firmly tightened. Usage of this principle over a period of time has demonstrated that the block does not deteriorate although it does get chewed up. None of these blocks has ever become unworkable but if one does, replacement is easy.

The problem in using axis traction, is to put a pulley anywhere in a space three feet above the mattress, 18 inches beyond the end of the bed, and 18 inches beyond each side of the bed. This arm and frame enable one to locate a pulley at any point in the space described in less than a minute and a half.

The arms and frames are sold separately. Some suspensions require only two arms, while others may require four or five. A survey of the types of fractures will show that a statistical usage of the arms will result in a minimum outlay of money. For instance, 10 frames might be equipped with 28 arms which would give a statistical average of 2.8 arms per frame. It is thought that, through the use of the statistics of fractures, the least number of arms would be needed in any given hospital.

The arms weigh 2½ pounds each as a complete assembly including pulleys, and there are no loose pieces involved. The arm with all its hardware is a locked-together assembly. All of the metallic parts of the arm are made either of stainless steel or are cadmium plated to prevent rust.

Accessories

THE frame lends itself to the application of a cellophane oxygen tent which can also be used to control temperature and humidity in the case of burn treatment.

An exercise bar is available for attachment to the top rail. The top rail will support a weight of 200 pounds and it is to this member that the exercise bar is attached. The use of side boards is easily accomplished by inserting them in the slots in the uprights.

A summary of the advantages of the frame is as follows:

1. Ease with which it can be erected.
2. Stability.
3. Ready adjustability.
4. Limited number of parts.
5. Arrangement of parts to prevent loss.
6. Elimination of the necessity of drilling holes for re-arrangement of pulleys.
7. Elimination of other apparatus to obtain abduction.
8. Interchangeability of head and foot portions and side bars.
9. Ease in applicability in placing pulleys at any desired point as far as 18 inches from frame without tools.
10. Comfort and accessibility of patient for nursing care.
11. Absence of interference with other portions of the bed, such as the Gatch spring.
12. Ease of transportation and compactness for storage.
13. Light weight of frame.

Re-employment of Ex-Service Men and Women
III. Medical Program

THE re-employment of ex-service men and women does not of itself call for a special or unique medical program, although it does lay particular emphasis on certain phases of the medical program. This is true because there rests upon the shoulders of the employer a degree of legal and moral responsibility for the re-employment of his people who have entered military service and who return with honorable discharges. Without minimizing the employer's willingness to be fair in his dealings with all employees at all times, it is nevertheless assumed that employers generally will wish to put forth greater than normal effort to insure that they do not refuse employment to any ex-service man or woman who is employable, and to insure that once employed they are continued in suitable employment.

It is the purpose of this booklet, first to outline the fundamental considerations which should guide all employers, particularly the smaller employer, in the establishment of a sound medical program of a size and type suitable to his needs, and, second, to emphasize what are believed to be the most important considerations in dealing with the re-employment of ex-service men and women, particularly those having some degree of handicap.

Scope of Program

AN INDUSTRIAL medical program, regardless of the size of the organization for which established, should have the following primary objectives:

1. A pre-employment examination of sufficient thoroughness to determine the physical fitness of

THE ABOVE, by REEVE M. BROWN, M.D., is No. 3 of a series of booklets designed to familiarize the employer and his supervision with the problems and responsibilities incident to the re-employment of ex-service men and women. This series is intended to stimulate sound, constructive thinking and to guide a practical approach, to the end that smaller industries may assume their proper role in affording every possible opportunity to returned service men and women again to take their places in our industrial, economic and social life. The program suggested in these booklets is based upon the experiences and practices of companies having well organized personnel functions, and upon official interpretations of the law itself. The booklets include the following titles: No. 1, "Obligations of Employer" (INDUSTRIAL MEDICINE, October); No. 2, "Job Analysis for Sound Placement" (INDUSTRIAL MEDICINE, November); No. 3, "Medical Program" (above); No. 4, "Placement and Follow-up"; No. 5, "Training Methods." The author of this booklet is REEVE M. BROWN, M.D., Medical Director, Chevrolet Motor & Axle Division, General Motors Corporation.

the individual and to afford an adequate background for sound placement on work suitable to the individual, with safety to others.

In order to determine the physical working capacity of a candidate for employment a complete physical examination of the applicant must be performed by a physician. The findings of the physician are the nucleus around which all future consideration for job placement revolves.

2. The prompt and adequate first aid treatment of injuries arising out of employment.

3. Adequate medical supervision of the individual to insure: (a) That occupational diseases are promptly detected and adequately cared for. (b) That individuals are not permitted to work when physically unsuited to do so, and that those suffering from personal illness or disease are referred to their own physician for medical care. This will necessarily include periodic examinations as well as health consultations where indicated.

4. Adequate medical supervision of the plant to insure that proper sanitary conditions are maintained and that occupational disease hazards are detected and either eliminated or controlled.

5. Close cooperation with other phases of management, particularly with those responsible for safety and personnel activities.

Management, having established a policy guiding the re-employment of ex-service men and women, of which the medical policy and program is an integral part, must develop readily accessible liaison between the physician in charge of the medical program and those responsible for production, training, and employment, through personnel or other designated supervisor.

A medical program which will adequately attain these objectives may, in larger organizations, require the full-time services of one or several physicians as well as the full-time services of nurses and technicians. It is very important to recognize, however, that the size of the organization and the nature of work in which engaged are determining factors in this regard. An equally sound program requiring only the part-time services of a competent physician and possibly only the part-time services of a nurse and the use of outside laboratory facilities may be established if the size of the organization and nature of work so indicate. The smaller employer, who cannot afford and who does not need an elaborate medical department, must not assume that he is thereby deprived of the advantages of an adequate and sound medical program suited to his needs.

Determination and Responsibility

THE MEDICAL program is a matter of important policy and should be determined by top management in consultation with those who are to be held responsible for its administration.

It is strongly recommended that where more than one physician is required, full- or part-time, one only be made fully responsible for the program, and that his advice and counsel be fully accepted by management.

In detail the program must establish minimum standards for preemployment examination, the nature and extent of in-plant first aid treatment, the degree and extent of medical supervision of employees from the standpoint of both occupational and personal conditions, and the physician's responsibility for plant inspections for the purpose of determining occupational disease hazards, safety hazards, and sanitary conditions.

While the physician is not usually able to give advice on mechanical problems, he will rapidly acquire a wide range of information having to do with operations, work station conditions, various exposures, sanitary matters, etc., which can be of great value to any management that sincerely desires to maintain the best possible working conditions and the highest possible standards of health and safety throughout its plant. These advantages can accrue to the small employer who requires only the part-time services of a physician, as well as to the larger employer who may have a staff of full-time physicians. It should be a matter of policy that the physician may have recourse to x-ray and laboratory facilities and to consultation with specialists as required.

Policies established should recognize as a sound general premise that a so-called handicapped person who is capable of performing an available job in a normally efficient manner, with safety to himself and others, is not handicapped so far as that particular job is concerned. It is also suggested that a more than normally liberal attitude be taken towards re-employing ex-service men and women who have suffered some degree of physical or nervous handicap. This is at once consistent with the employer's legal responsibilities and with his moral responsibilities to the individual and to society.

Selecting Medical Personnel

THE selection of a physician, whether full- or part-time, is important. He must have sound academic and professional training. The broader his background of experience in general private practice, as distinct from a specialty other than industrial medicine, the better. Like any successful private physician, the man serving industry on a full- or part-time basis must have a good contact personality, the capacity to make and hold friends and to inspire confidence in those with whom he is thrown in daily contact. Inescapably the physician engaged in industrial practice is counselor and friend of the worker as well as medical consultant of management. The physician is frequently able to make constructive recommendations to management along other than medical lines, as the employee often reveals conditions connected with his work that are outside of his medical needs.

Previous experience in the field of industrial medicine is not essential to enable a competent physician who is sincerely interested satisfactorily to carry on industrial medical work.

Where a part-time physician is used he must be willing to devote a sufficient amount of his time periodically to plant inspections and plant visits to acquire the background of plant knowledge which is essential to his work. He should also be willing to brush up on particular phases of industrial work with which he may not be currently familiar, such as industrial toxicology, dermatitis, etc. Management will find that the cost of such services is money well spent.

Likewise in the selection of nurses, whether full- or part-time, first consideration must be given to professional competence. A nurse also requires good contact personality, and must be able to deal sympathetically but firmly with those with whom she comes in contact. The physician who is responsible for the plant medical program should be responsible for selecting his staff. Where he has not had previous industrial experience it is important to point out that a nurse selected for industrial work should not only have an interest in what is wrong with the patient but also the ability to recognize the importance of finding out where, how,

and why accidents occur in order that she may play her full part in accident prevention work. There must also be impressed upon the nurse the importance of maintaining concise and accurate case records in accordance with the procedures established.

While it is recognized that men and women trained in first aid perform excellent service in industry, it is recommended that wherever possible a registered nurse be used. Where sufficient registered nurses are not available they may be supplemented by practical nurses or by trained first-aid men or women, but it is distinctly to be preferred that registered professional personnel be responsible for first-aid care and treatment. Where this is not possible satisfactory results may be obtained if there is a well-coordinated and clearly understood medical program supervised by a competent physician.

The Ex-Service Man or Woman

A LARGE proportion of the men and women returning from military service will offer no medical or placement problems. Many will be better qualified for positions of responsibility than before, due to the training and experience which they have had in the armed services. Maturity of viewpoint and judgment, and capacity for cooperation and leadership will have been developed. The re-employment of these affords industry a real opportunity.

Others will offer varying degrees of medical and placement problems. Of these individuals a percentage will have been unable to "make the grade" either because they were mentally incapable of making the necessary adjustments or were physically unsuited to the rigors of training and discipline, and, therefore, have been dropped out before experiencing any combat. Yet others not exposed to combat have been the victims of disease, both at home and abroad, which has necessitated their honorable discharge. Still others have been injured in combat and/or have suffered some degree of nervous breakdown as a result of combat or near-combat experience. There are yet others who have progressed satisfactorily in the armed services up to a point but who have not been able to adjust themselves to all of the experiences and conditions imposed, and have had some degree of nervous breakdown, ranging from mild to extremely severe, which may or may not have been related to actual combat or front line experience, but in any event is not related to any physical injury sustained.

The foregoing groups constitute the employment problem which industry as a whole, and employers individually, must face if the full responsibility for the re-employment of ex-service men and women is to be adequately discharged.

Every effort should be made to place the returned veteran on a job which will fully utilize his skill, ability, and working capacity. To this end it may be practical to make some modification of individual jobs as normally performed. Generally, however, a policy of creating new or specialized jobs to the extent of "making work" will prove unsatisfactory over the long pull to both employee and employer.

It must be stated that probably only a few ex-service men and women of any given industry will not be re-employable in that industry by virtue of the extent of their disability and the hazards of that industry. Such cases will be by no means common, and should be referred to the Veterans Administration for vocational training or physical rehabilitation.

Procedure and Follow-up

IT IS ASSUMED that the returned veteran will have been interviewed before he is seen by the physician, and that his technical skill and ability will have been determined. It is desirable that the results of this interview, particularly the service history and the expressed interests and attitude of the individual, be available to the physician prior to his initial contact with the veteran.

With this information the physician's first consideration should be to establish a friendly personal contact with the veteran. The veteran should then be given a physical examination. This physical examination, directed only toward finding the working capacity of the individual, must be as inclusive and exhaustive as each individual case will require. The medical history and the occupational background are important factors from which the physician shall begin his studies. The extent of the examination procedures will vary in each case dependent on the specific physical findings. Certain cases may require x-ray surveys, others heart studies, and still others blood and serological studies. Some cases may require consultation with specialists to determine the working capacity of the individual.

The physician, upon completion of the physical examination, will be in position to indicate the type of work which the individual's physical and nervous condition will permit him to perform.

It should be emphasized that although the physician is examining for the employer, the records of his findings are confidential and zealously guarded. It is only the opinion of the physician as to the working capacity of the individual which the employer desires, and not the details.

As a result of this pre-entrance examination the physician will determine what his follow-up steps will be in each individual case. This may involve only the normal procedure in the case of those individuals who have suffered no physical or nervous impairment, but may involve frequent follow-up where some degree of impairment has been suffered. Generally, it is recognized that an individual who appears perfectly normal upon return to civilian life may nevertheless encounter difficulties in readjusting himself, and it is therefore suggested that the physician contact the individual's supervisor at least once during the first or second week of employment. This should be the minimum requirement. More frequent and extensive follow-up will be made at the physician's discretion.

Wherever there is physical impairment the physician will want to follow through on job placement to be sure that the individual can satisfactorily perform the work without injury to himself and with safety to others. Also where there is any degree of nervous upset or mental disturbance, even though it may in no sense preclude the possibility of employment, the physician will want to keep in close touch with the progress of the case to satisfy himself that readjustment is progressing satisfactorily and to lend whatever assistance he can to that end.

In practically every case of physical or nervous impairment the physician should consult with the person responsible for job placement, and all job assignments of such cases should be based upon the approval of the physician. This applies to transfers to work of a dissimilar nature involving changed work surroundings.

As often as possible job placement should be such as to utilize any residual working capacity, especially when indications are that function may be improved or restored. In this manner the working capacity of an individual may be

increased. It is not suggested, however, that vocational rehabilitation as such be made a part of this plan; that is believed to be a function of the Veterans Administration. It is meant that the employer should do all he can, consistent with sound business principles, to improve the ex-service man or woman within his own industry.

It may be necessary to restrict the working hours per day or the working days per week of certain individuals during the initial phase of their re-employment. This procedure has worked with outstanding benefits to both the employee and the employer.

Among the less obvious disabilities may be included the psychoneuroses. This group require close and frequent follow-up studies. A great many of the psychoneurotics were employed prior to entry into the armed forces and accomplished satisfactory work, often with a high degree of skill. The fact that they have been so labeled, does not preclude their return to industrial employment when their working capacities have been determined, provided they remain under continued medical supervision. This is also true of those suffering from syphilis who are not infectious as long as they remain under adequate treatment or have been declared arrested cases. Other types of disabilities fall in this same category and include diabetes, certain blood diseases, and tuberculosis.

Conclusion

RETURNED service men and women who are physically handicapped are a challenge to management's sympathetic and intelligent understanding. They will offer a medical problem and a placement problem. In approaching its legal and moral obligations to these returned service men and women management should bear in mind that if these veterans face an uncertain future, all the mental depression, sullen resentment, and, most important, the near panicky apprehension that follows, they may become an actual threat to our democratic way of life. They may, and not unreasonably, become embittered critics of the system which permitted them to become unemployables and which failed adequately and sympathetically to cooperate in returning them to normal, useful lives. On the other hand, proper handling of these problems may turn them into the best kind of assets that our country or any business can have—citizens handicapped in their country's service for whom independence and self-respect have been saved, and whose faith in their country has been justified.

This booklet has been written in the belief that a sound medical program, developed to meet the needs of the individual business and operating with the full and continued cooperation of management, can make a real contribution towards solving the problem of the re-employment of ex-service men and women. A program so developed will prove equally sound in meeting all employment problems from a medical point of view.

Medical Entomology in Industrial Medicine

—In the United States—

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THAT portion of medical entomology more closely identified with industrial medicine has been segregated but reports of other than individual involvements are few in number. Multiple infestations of factory origin approaching epidemic proportions are rarely recorded. In this dearth of material it becomes the purpose of this article to present four episodes or small epidemics in which groups of workers were attacked by ectoparasites.

Since these four episodes widely fail to encompass the total number of ectozoa that may be encountered by workers on plant premises or otherwise in connection with employment, brief note will be made of certain other ectoparasitic states of likely occurrence in this country.

Fig. 1.
The Head Louse, *Pediculus capitis*.
(Andrews)

Fig. 2.
The Crab Louse, *Pediculus pubis*, female.
(Andrews)

Every year, all larger industrial medical establishments are confronted with varying numbers of patients with pediculosis capitis, pediculosis corporis, pediculosis pubis, bites from mosquitoes, chiggers, jiggers, bedbugs, fleas, flies,

Fig. 3.
The Body Louse, *Pediculus corporis*, male (above) and female (left) (Andrews)

mites, and alleged spider bites, etc. Commonly these conditions arise as isolated instances and from exposures apart from industry. Scabies primarily finds origin in schools and homes. Notwithstanding, it is conceded that within industry the offending parasite may be transferred among workers, which leads to the implication that the scabies victim should be excluded from the work place until eradication is achieved. In the case of pediculosis, the same attitude should apply, but in this condition modern therapy makes possible almost immediate control. Pediculosis pubis, while rarely acquired about toilets, is possibly so acquired thereby imposing responsibility as to lavatory sanitation.

It is recognized that much of well-organized industry is conducted apart from the conventional factory. Obviously, this includes such operations as farming, commercial fishing, lumbering, mining, pipeline laying, etc. These occupations may provide ample opportunities for exposure to ectoparasites as well in some instances to endoparasites such as malaria. Here injury may arise from a host of animal parasites, including flies, fleas, gnats, midges, chiggers, jiggers, bedbugs, ticks, mites, etc. Scarcely may these exposures be accorded other than mention at this time, although a few exceptions later appear. In the spring and early summer and in some areas only, farm and other outdoor rural work may be made almost impossible by buffalo gnats (Eusimulium pecuarum). Size for size, no other insect may inflict so painful a bite as the buffalo gnat. The phlebotmus fly, an inhabitant of this country, is in nearby countries the vector of the

Fig. 4.
The Buffalo Gnat, *Eusimulium pecaurum*, commonly called the Buffalo Fly. (Herms)

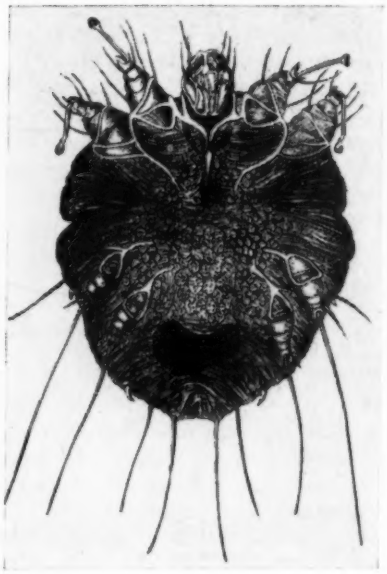


Fig. 5.
The Scabies Mite, *Acarus Scabiei*, fecundated female. (Ormsby and Montgomery)

trypanosomes leading among other manifestations to cutaneous leishmaniasis.

Commoner Epidemic Ectoparasitism

VEERING away both from such disease states as exemplified by scabies and from such forms of exposures as arise in industrially maintained camps, such as to bedbugs, and at the same time laying aside the ordinary vermin of industry such as cockroaches, there remains a substantial lot of industrial situations in which the ectozoa can and have been identified with industrial medicine.

A list is first provided and thereafter all briefly are discussed:

Acarodermatitis urticarioides (Caused by Pediculoides ventricosus) (grain itch, threshers' itch).

Rat Mite Dermatitis (Caused by Liponyssus bacoti).

Poultry Mite Dermatitis Itch (Caused by Dermanyssus gallinae and hirundinis).

Grocer's Itch (Caused by the Tyroglyphidae) (Related conditions, "copra itch," "cheese itch," "miller's itch," "vanilla itch").

Onion Mite Dermatitis (Caused by Acarus Rhysoglyphus Hyacinthi).

Brown Tail Moth Dermatitis (Caused by Euproctis chrysorrhoea and others).

Commercial Fisherman's Dermatitis (Caused by Schistosome cercariae).

Acarodermatitis Urticarioides

THE parasite (Pediculoides ventricosus) associated with this affection and the affection itself are accorded a wide variety of popular

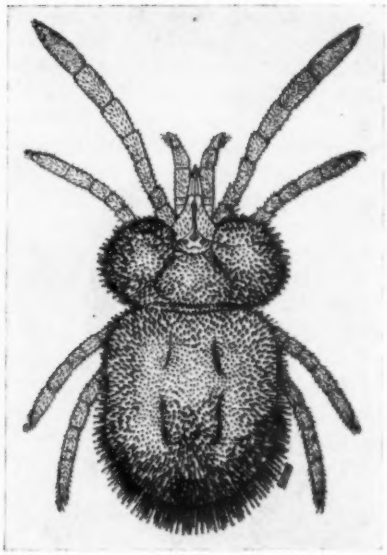


Fig. 6.
The North American Red Bug, *Trombicula irritans*, commonly called the "chigger." (Ewing)

and local names such as grain mite, straw mite, harvest mite, chigger mite, thresher's itch, mattress itch, prairie itch, straw packer's itch, barley itch, bunkhouse itch, swamp itch, Ohio scratches, and Texas mange. This condition often is confused with scabies although the lesions are quite dissimilar. The term "harvest mite" is preferably by entomologists associated with the American "red bug" (Trombidium irritans) which almost universally is called the "chigger." However, the true "chigger" is the sand flea (Tunga penetrans), a parasite rare to this country.

Pediculoides ventricosus feeds on the larvae of various other parasites infesting growing plant life and, therefore, is foremostly a helpful organism. This light yellow parasite is scarcely visible to the naked eye except the gravid female which becomes so enlarged as at once to suggest a wholly different organism. These females give birth to two or three hundred adult offspring most of which are females, with as many as 50 mites born in a day. Only the female

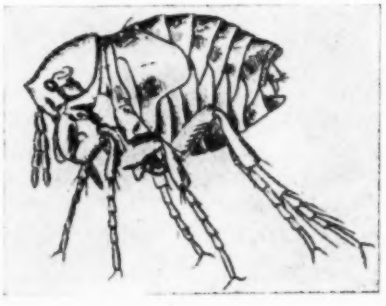
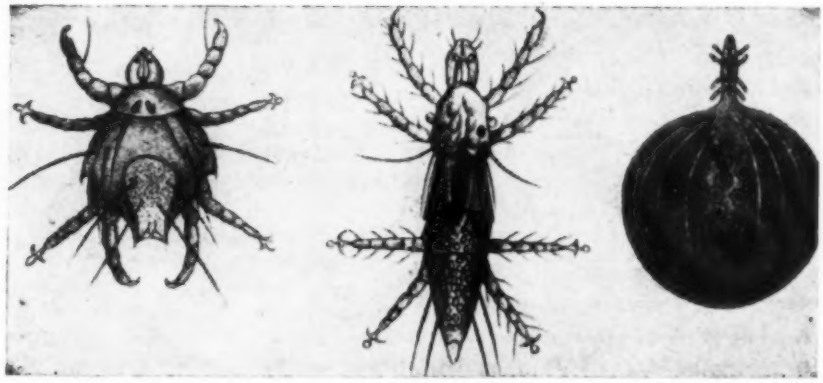


Fig. 7.
The True "Chigger"—the Sand Flea, *Tunga penetrans*. (Riley and Johannsen)



Male *Female* *Gravid Female*

Fig. 8.
The Grain Mite, *Pediculoides ventricosus*, different figures not drawn to scale. (Stelwagon)

attacks human beings, although males may be found on the human body. Hordes of these graminivorous parasites may be present on grain and straw at the time of threshing, may get into bunkhouses when straw is used in bed ticks, may enter industrial plants on straw used for packing purposes, or may reach animal laboratories when hay is used for feeding.

In contact with the human body, Pediculoides ventricosus does not long survive—five or six days representing the usual limit of survival. Not often may they be found on the human body, although they are credited with capacity to burrow into the skin which is doubted. These parasites elect skin areas under tight fitting garments such as garters, straps, belts. The eruption produced arises within 16 hours after the attack and may be associated with elevated temperatures as high as 102° F. It is characterized by petechial hemorrhages which are quickly followed by thick, discrete urticarial wheals. Itching is severe and of ordinary parasitic states is perhaps second only to scabies. Several hundred such bites may exist at one time. Scratching frequently destroys the revealing puncta. At times, the lesions become vesicular or pustular. Some patients may be freed of distress within four or five days but occasionally, the condition despite treatment may continue five or six weeks. The nature of this parasitic disease was perhaps first recognized by 1829 in New England settlements.[1]

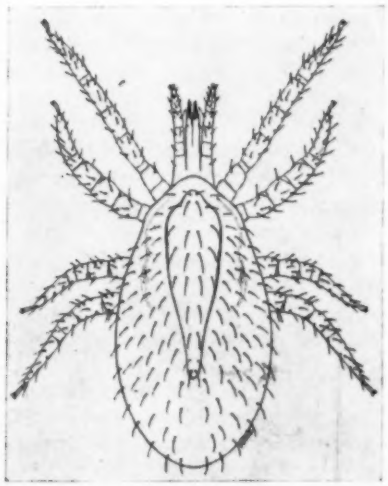


Fig. 9.
Tropical Rat Mite, *Liponyssus bacoti*, dorsal view. (Ewing)

Rat Mite Dermatitis

ALTHOUGH commonly associated with Liponyssus bacoti, it is probable that various other species use the rat as a host. As will be mentioned later, in one episode, a type of poultry mite probably was brought into an industrial factory by way of rats. These organisms do not consistently live on their rat or human hosts. They are blood feeders and drop off after each blood meal. They are therefore, most readily found in rat nests. From the larval state to adulthood at least four blood meals are necessary for survival. These dark colored parasites may be seen with the naked eye, particularly if the background be white. The lesions produced lead to diagnostic puncta, small-sized urticaria and moderate itching. The initial bite may be distinctly painful. Commonly the lesions are on the lower extremities but have been seen everywhere. The nature of the victim's garb in some measure may determine the site of the bite. This particular mite has a longer range of travel than most others so that humans may be attacked comparatively far away from rat nests. Compared with acarodermatitis urticarioides the dermatitis produced by Liponyssus may be a trifling affair.[2]

Poultry Mite Dermatitis

THIS condition while customarily associated with Dermanyssus gallinae and hirundinis probably may be caused by a large group of parasitoid mites having great similarity except for the skilled entomologist. The bird mite (fowl mite, roost mite, chicken louse) is about the size of the printed period at the end of this sentence. The mite is about 0.6 mm. in length, pear-shaped, light gray, except after feeding. This parasite passes through three or four molts, reaching full maturity in from two to six weeks depending upon environment. It may be brought into industrial plants on garments of workers living on farms, or raising chickens, or by persons caring for canaries. They may be harbored by rats.

Fig. 10.
The Poultry Mite, *Dermanyssus gallinae*, viewed from above. (Ewing)

1. GOLDBERGER, J., and SCHAMBERG, J. F.: "Epidemic of An Urticariod Dermatitis Due to a Small Mite (Pediculoides ventricosus) in the Straw of Mattresses." *U. S. Pub. Health Rep.*, 24:973 (July 9) 1909.
ORMSBY, O. S., and MONTGOMERY, H.: "Diseases of the Skin." 6th ed., p. 1131, Lea and Febiger, Philadelphia, 1943.
RAWLES, L. T.: "Dermatitis Ditropenotus Aureoviridis; Synonym: Straw Itch." *J. Indiana Med. Assoc.*, 2:337, 1909.
SCHAMBERG, J. F.: "Grain Itch (Acarodermatitis Urticarioides). Study of a New Disease in This Country." *J. Cut. Dis.*, 28:67, 1910.
STELWAGON, H. W.: "Diseases of the Skin." 9th ed., p. 1242, W. B. Saunders Company, Philadelphia, 1921.
WILLS, W. K.: "Barley Itch." *Brit. J. Derm.*, 21:249, 1909.

2. CRAIG, C. F., and FAUST, E. C.: "Clinical Parasitology." 3rd ed., p. 516, Lea and Febiger, Philadelphia, 1948.
DOVE, W. E., and SHELMIRE, B.: "Tropical Rat Mite, Liponyssus bacoti, Vectors of Endemic Typhus." *J.A.M.A.*, 97:1506 (November 21) 1931.
HERMS, W. B.: "Medical Entomology." 3rd ed., p. 485, Macmillan Co., New York, 1943.
KEMP, H. A.: "Endemic Typhus Fever, Rat Fleas as a Possible Vector." *J.A.M.A.*, 97:775 (September 12) 1931.
ORMSBY, O. S., and MONTGOMERY, H.: "Diseases of the Skin." 6th ed., p. 1134, Lea and Febiger, Philadelphia, 1943.
SHELMIRE, B., and DOVE, W. E.: "The Tropical Rat Mite, Liponyssus bacoti Hirst, 1914 (The Cause of a Skin Eruption of Man and a Possible Vector of Endemic Typhus.)" *J.A.M.A.*, 96:579 (February 21) 1931.

Like the true rat mite, these ectoparasites procure a blood feeding and then drop from the host. Therefore, any epidemic dermatitis caused by mites brought in on workers' garments will be short-lived unless day by day such workers introduce new lots. The features of the lesions, the severity, and sites are similar to those mentioned under rat mite dermatitis above.[3]

Grocer's Dermatitis

A GROUP of mites of some similarity thrive on food stuffs and provide exposure to a larger work personnel than grocers. Fruit pickers, driers, canners, bakers, candy makers, cheese makers, millers,

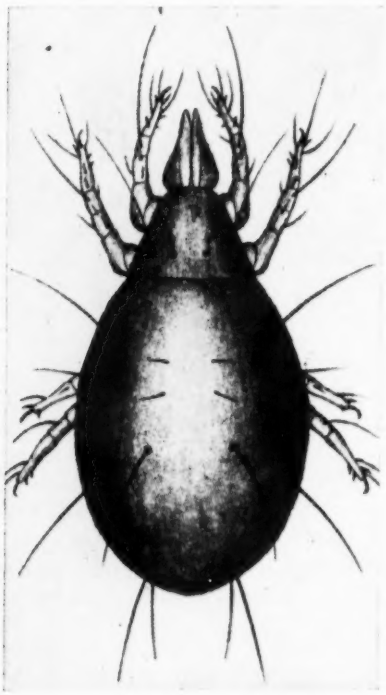


Fig. 11.
The Cheese Mite, *Rhizoglyphus phylloxerae*. (Ewing)

copra grinders, cottonseed handlers, bean pickers and oil extractors are representative of trades connected with foods in which parasitic skin affections have arisen. Small differences in lesion characteristics have been described for different food mites but "are found on the hands, arms and legs, sometimes on the whole body except the face. They are fairly numerous, itch extremely and may consist of papules, papulo-pustules, pustules, crusts and excoriations. The eruption begins on the hands and spreads to the arms, legs and trunk."[4]

Onion Mite Dermatitis

IT IS NOT precisely known that this common European affection has appeared in the United States, but it has been suspected as the nature of various outbreaks among bulb plant workers. Such epidemics variously have been attributed to chemical irritants produced in the allium family. This is not denied but some parasitic invasions may have arisen as well as chemically induced disorders. Typical clinical features are pinhead, red papules usually made raw by scratching following itching which at times is severe.

This condition may arise among any workers handling decaying onions. Grocers and farmers are probably the most exposed groups. These organisms do not penetrate the skin so that the skin damage chiefly is attributed to irritant qualities of saliva or excreta.[5]

Brown Tail Moth Dermatitis

ALTHOUGH captioned under a single specie, at least seven other families of Lepidoptera grow urticating hairs. All workers whose duties entail handling of trees or tree parts or work in the vicinity of trees may be exposed. This grouping includes foresters, tree

Fig. 12.
Section of Brown-tail Moth Caterpillar showing toxic hairs, *Euproctis chrysorrhoea* (Ormsby and Montgomery)

surgeons, linemen, and cattlemen, among others. Contact with the caterpillar is not requisite. More often air-borne hairs are responsible. May and June are the months of highest frequency. These molted hairs, which are hollow, contain the irritant. Allergy possibly may contribute to the dermatitis. Ingested hairs may lead to serious systemic involvement.

As described by Ormsby and Montgomery, the chief clinical features are:

"The disorder begins with itching, shortly after the irritating hairs have been deposited upon the skin. Erythematous macules follow which are succeeded by firm, pea-sized, moderately elevated, urticarial lesions. The color of the lesions disappears under diascopic pressure. The lesions may be few and discrete or numerous. The individual lesion lasts from a few hours to a few days and the eruption from several days to several weeks. The areas commonly affected are the face, neck, arms, chest and back, though any area may become involved. In severe cases confluence of lesions occurs forming variously-sized patches. Intense itching may be present. In rare instances eczema follows."

Another caterpillar (Megalopyge opercularis) produces a more severe local and general disorder described by Bishopp as follows:

"Almost immediately after any portion of the body comes in contact with one of these caterpillars an intense burning pain is felt, described by some as similar to a severe nettle sting. This usually becomes worse accompanied by itching for several minutes and persists from one to 12 hours and sometimes longer. Almost immediately after a sting the area touched by the caterpillar shows minute raised whitish spots or papules which soon become red, followed by spreading of the inflammatory area for several inches and often accompanied by general swelling of the portion of the body stung. Stings on the wrist have been followed by a swelling of the entire arm to almost double its normal size. A feeling of numbness which almost assumes the characteristics of paralysis accompanies the swelling. This is usually confined to the member attacked but may be generalized. Apparently stings on the neck are even worse, as the writer has one record of a man who was stung severely on the neck and completely incapacitated, being confined to the hospital for six days. These paralytic symptoms are often accompanied by nausea and sometimes by vomiting. The stings are especially severe among young children, who often develop considerable fever and nervous symptoms. These sometimes last for a day or two and are accompanied by nausea, especially during the first few hours. Usually

3. CRAIG, C. F., and FAUST, E. C.: "Clinical Parasitology." 3rd ed., p. 516, Lea and Febiger, Philadelphia, 1943.
HERMS, W. B.: "Medical Entomology." 3rd ed., p. 486, The Macmillan Co., New York, 1943.
4. CASTELLANI, A.: "Copra Itch." *Brit. Jour. Derm.*, 25:19, 1913.
CLEVELAND, D. E. H.: "Mite Dermatitis." *Arch. Derm. & Syph.*, 41:831, 1940.
HERMS, W. B.: "Medical Entomology." 3rd ed., p. 509, Macmillan Co., New York, 1939.
ORMSBY, O. S., and MONTGOMERY, H.: "Diseases of the Skin." 6th ed., p. 1135, Lea and Febiger, Philadelphia, 1943.
5. PAWLOWSKY, E. N., and STEIN, A. K.: "Experimental Research on the Action of Milbe Rhyzoglyphus Hyacinthi in Producing a Characteristic Dermatitis in Man." *Arch. Derm. & Syph.*, 158:443, 1929.

within two or three hours after a sting, the reddened pimple-like swellings at the site assume the appearance of small vesicles or blisters. These usually persist for a few hours and then apparently harden through absorption, leaving a roughened area. In some instances the discoloration of the skin surrounding the point of attack is rather marked, varying from a deep red to almost black. The paralytic symptoms usually subside with the pain, but the local lesions often persist for several days."

Herms lists a number of other sources of urticating hairs as now shown:

"Those concerned with the subject of urticarial hairs will need to consult Weidner's (1936) work which includes a comprehensive bibliography on the poisonous hairs. Weidner lists the following families of Lepidoptera which include caterpillars with hairs causing skin irritations, namely, Morphidae, Morpho hercules Dalm.; Arctiidae, Lithosia caniola Hbn., L. griseola Hbn.; Lymantriidae, Nygmia phaeorrhoea Don. (Euproctis chrysorrhoea (L.)), Porthesia similis Fuessly, and several others; Thaumetopoeidae, Thaumetopoea pinivora Tr., Anaphe infracta Wlsgh., and others; Lasiocampidae, Macrothylacia rubi (L.), Dendrolimus pini (L.), Lasiocampa quercus (L.), and others; Noctuidae, a few species occasionally cause irritation; Nymphalidae, larval hairs may pierce the skin, e.g., Vanessa io (L.) and Hamadryas antiopa (L.) (mourning cloak)'; Saturnidae, Automeris io (Fabr.) (Io moth), Hemileuca maia Drury (buck moth), and others; Megalopygidae, Megalopyge crispata Pack. (flannel moth), and others; Limacodidae Sibine stimulea Clem. (the saddle-back caterpillar), and others."[6]

6. ORMSBY, O. S., and MONTGOMERY, H.: "Diseases of the Skin." 6th ed., p. 1135, Lea and Febiger, Philadelphia, 1943.

HERMS, W. B.: "Medical Entomology." 3rd ed., p. 509, Macmillan Co., New York, 1939.

BISHOPP, F. C.: "The Puss Caterpillar and the Effects of Its Sting on Man." U. S. Dept. of Agric. Dept. Circ. 288, 1923.

CAFFREY, D. J.: "Notes on the Poisonous Urticating Spines of Hemileuca oliviae Larvae." *J. Econ. Ento.*, 11:363, 1918.

TYZZER, E. E.: "The Pathology of the Brown-Tail Moth Dermatitis." *J. Med. Research, n.s.*, 16:43, 1907.

WEIDNER, H.: "Beitrage zu einer Monographie der Raupen mit Gifthaaren." *Zeits. f. Angewandte Ent.* 23:432, 1936.

WHITE, J. C.: "Dermatitis Produced by a Caterpillar." *Boston Med. & Surg. J.*, 144:599, 1901.

MEEK, E. R.: "Further Observations on the Brown-Tail Moth." *Boston Med. & Surg. J.*, 144:657, 1901.

TOWLE, H. P.: "The Brown Tail Moth Eruption." *Boston Med. & Surg. J.*, 152: 74, 1905.

SPEAR, E. D., "Brown Tail Moth Eruption." *Boston Med. & Surg. J.*, 152:121, 1905.

POTTER, A.: "Brown Tail Moth Dermatitis: Report of a Case." *J.A.M.A.*, 53: 1463, 1909.

Commercial Fisherman's Dermatitis

THIS condition, primarily "swimmer's" dermatitis, may arise among life guards and commercial fishermen on an occupational basis. It is the best known in Michigan and may be limited to that general area. The causative parasite lives on water snails. The lesion is produced by the penetration of the skin at hair follicles by the parasite. After exposure inflammation is prompt, the lesion being urticarial. After one or two days papules and vesicles may appear. Within the epidermis, the parasite burrows but essentially the affection is self limiting.[7]

The Four Episodes

1: Acarodermatitis Urticarioides

ON THE morning of July 7, 1943, in a plant devoted to packaging of small objects for overseas shipment, eight (eventually 16) women presented themselves in the plant dispensary all with a similar acute dermatitis accompanied by violent pruritus. All of these women were from one section of one department. Some first noticed the affection on the afternoon of the day previous, the majority during the preceding night, and some few only after reporting for work on the date mentioned.

On examination these women proved to have involvement chiefly under garment pressure points, that is, under shoulder straps, brassieres, girdles, belts and under breasts. All lesions were urticarial, of a size of a fingernail, pink in color, sometimes confluent. Although not observed at first, later were noticed single puncta red in color, vesicular and tongue-like. The greater number of these central vesicles were removed by scratching. The degree of itching apparently was extraordinary. After the application of anti-pruritic agents, which was not highly successful, an investigation was instituted as to the cause.

The work in which these women were engaged represented the dipping of metal objects in various hot and cold paraffin-type waxes and subsequent wrapping of the assemblies of such objects in waxed paper or fabric. From previous experience and patch testing, it was known that none of these protective coating materials were common irritants or allergens. It was established that no new types of materials or no new batches of material had been brought into the department on that day or the day previous. In short, customary work materials were ruled out as the cause of the dermatitis.

During the preceding long weekend (July 4) holiday period, the washroom frequented by these women had been treated with some vermin (cockroach) exterminator. Some of this dusting powder had been implanted high upon projecting ledges in this room. At once this material was suspected. A quick chemical analysis revealed a trace of mercury which immediately was mildly culpated, but it soon developed that this mercury, if present at all, represented a mercury fungicide far previously applied at a sawmill for anti-mildew purposes. This lead was abandoned.

Early in the morning of July 7, 1943, there had been brought into the work section a number of cardboard cases of previously packed objects for repacking. In the meantime, these cases had been stored in a nearby, unused power plant room. This suggested the possibility of rat mites from rat nests in these stored cases. However, the fact that some of the women had become involved on the previous day seemingly ruled out this source of dermatitis.

By this time a day had passed and the number of patients was now 13. Little improvement had taken place during the preceding 24 hours. One patient had an excess of 100 welts. Although all those involved remained at work, a near panic prevailed. By this time it was apparent that some animal parasite was responsible for the condition. No animal life had been seen and the location of the lesion eliminated certain insects such as mosquitoes. The severity of the lesion precluded the likelihood of ordinary rat or poultry mites. Through process of elimination, one by one, various parasites were excluded until there remained only one as a highly probable cause. This was the grain or straw mite earlier described.

Inquiry was made as to presence of any hay, straw, grain or related material in the plant. None was found. In the department 39 persons were employed. A quick canvass was made as to the whereabouts and activities of all of these persons during the preceding week. Inquiry was directed to sleeping on straw ticks, residence on farms, bedding down of animals in straw, hay making, threshing, etc. By this time,

7. CORT, W. W.: "Schistosome Dermatitis in the United States (Michigan)." *J.A.M.A.*, 90:1027, 1929.

BRACKETT, S.: "Pathology of Schistosome Dermatitis." *Arch. Derm. & Syph.*, 42:410, 1940.

ORMSBY, O. S., and MONTGOMERY, H.: "Diseases of the Skin." 6th ed., p. 1155, Lea and Febiger, Philadelphia, 1943.

the total number of cases was 16, including one man whose lesions were limited to the left arm. Out of the 39 persons interrogated, three (two men and one woman) proved to have been around straw or hay. The two men had been pitching hay during the holiday period. However, their factory work was remote from the involved area. The third person, a young girl, although uninvolved, proved to be the probable vector. For about two weeks prior to the outbreak, this worker had been on vacation on a farm. She stated that daily she had played in hay lofts and hay stacks wearing, at times, the same coveralls worn at work. These garments after having been worn at play were brought into the plant and hung alongside the garments of all women infested. The presumption is that by this act she distributed large numbers of grain mites. The fact that she was not involved is possibly attributable to her swarthy, oily skin. By the time of this disclosure, five days had passed. No mites in this instance were seen. Owing to our cunctative investigation, the survival period of the mites elapsed prior to the time that this epidemic was accepted as one due to Pediculoides ventricosus.

2: Poultry Mite Dermatitis

ON MARCH 3, 1944, two persons employed in a photographic laboratory complained of "bites." No extensive dermatitis developed, but a few puncta surrounded by small areas of erythema were observed widely scattered on the arms and legs of these people. The patients involved also complained that they noticed numerous small bugs on the laboratory benches. This photographic laboratory consisted of a large dark room approximately 40 feet square and two smaller rooms operating in conjunction with the main dark room, all of which was completely enclosed and operated much of the time in darkness relieved only by photographic safe lights. A department of six employees worked in this facility. These people also complained that recently the laboratory had become inhabited by rats.

The animal parasite in this instance was quickly identified as a mite. Specimens were routed through the City Health Department and Michigan State College Entomology Department. The latter, on the basis of imperfect specimens, expressed the opinion that this was Dermanyssus.

Prior to a final diagnosis, these premises had been fumigated with hydrocyanic gas. The results were disappointing. The final procedure was completely to wash all the involved rooms with 1:2 kerosene and soap emulsion. All rat runways were blocked. Following this, all complaints ceased and no more parasites were reported.

The six employees were carefully interviewed by the plant physician but there was no evidence of poultry products being brought directly to this department from farms. Furthermore, none of the employees kept pigeons, chickens, canaries or other birds.

3: Rat Mite Dermatitis

ON OCTOBER 19, 1944, in a new plant of wood, non-rat-proofed construction, it was reported that employees were complaining of bites from small parasites. Numerous parasites had been seen and were associated with large balls of twine. Investigation revealed five employees involved with dermatitis similar to that described under Episode No. 4 but milder in extent and severity. These balls of twine were found to be heavily infested with mites identified by us as the Liponyssus variety.

The infested balls of twine were kept in a wooden store room. They were received in burlap wrapped bales of one dozen. The employee in charge of this store room reported that approximately six weeks before this infestation became evident, rats had made an entrance into the room alongside a service pipe. Inspection of these premises disclosed that balls of twine next to the floor had been invaded by rats that nested therein.

A rat control campaign was recommended and the store room was completely cleaned and all infested balls of twine removed. The latter were treated by immersion in gasoline and dried outdoors. All complaints have ceased.

4: Rat Mite Dermatitis

ON NOVEMBER 4, 1944, three patients of a total of six were examined in an industrial medical department on account of a dermatitis not then known to be identical. Two patients were female and one male, all were of middle age. These three examinees and three others elsewhere examined were employed in a maintenance stock room in a metal fabricating plant. A wide variety of materials was handled in this stock room, including tools, textile materials, rope, cleaning chemicals, etc.

On examination, the two women exhibited lesions over their abdomens, on and under their breasts, on their shoulders, and a scattered few elsewhere. The chief complaint was of moderate itching. In the case of the one man, lesions were limited to forearms and one thigh. The lesions were urticarial, much smaller than the lesions in Pediculoides ventricosus, and in a few instances there was lineal arrangement. Where scratching had not occurred, there were in all instances puncta. These puncta were hemorrhagic and unlike the puncta in acarodermatitis urticarioides, were not highly inflamed or vesiculated. Vaguely, the general appearance suggested scabies. One woman stated that she had had a similar condition, off and on, for 30 days and had used various household remedies. The other woman had been involved for about two weeks. The man for a shorter period.

Purely from a clinical appearance, a diagnosis of rat mite dermatitis was made.

Thereafter, an investigation was instituted at the work point. Large numbers of bins were found to be located in a small enclosure roughly 30 feet by 40 feet. The construction of these bins was such that beneath the bottom and above the room floor there was a space of three or four inches. In such areas a fair number of rat nests were found and within these nests there were large numbers of rat mites. The usual characteristics of the rat mites were established under the microscope. In this instance no rats were caught for the purpose of locating mites as this appeared to be unnecessary since they were abundant in the rat nests, their natural habitat. At once a thorough housecleaning was started. All portions of this room were washed down with 50% kerosene emulsion and an anti-rat campaign was instituted. It is noteworthy that in our experience with rat mites, it appears that the rats have sought the security of taking up life in small room areas in older wooden factories rather than in the larger spaces in modern factories. These patients were treated symptomatically and within one week's time the dermatitis had substantially disappeared. The severity of rat mite dermatitis is far less than that of grain mite dermatitis.

Summary

SPORADIC cases of dermatitis among industrial workers may be traced to the bites, stings, or other external action of various animal parasites, including lice,

"I hear the war's practically over... back home!"

PROBABLY it's only natural for us here at home to feel that the war's almost won, the way the good news has been pouring in.

But the war's not over for *him—not by a long sight!* And he's just one of a few million or more that will stay over there until they finish the bloody mess. Or kill time for a few months—or years—in some hospital.

What about *you?*

This is no time to relax. No time to forget the unfinished business. It's *still* your war, and it *still* costs a lot.

So dig down deep this time. Dig down till it hurts, and get yourself a hundred-dollar War Bond over and above any you now own —or are now purchasing. This 6th War Loan is every bit as important to our complete and final Victory as was the first.

Don't "let George do it"—get *yourself* that *added* bond and help finish a magnificent job *right.* The quicker you reach down deep, the better you do *your* job for war, the more you'll contribute to ending the fight. And the quicker they'll come back—the guys that can *still* be killed.

After all, you're safe and sound and *home. That's worth another hundred-dollar bond to you, isn't it?*

Buy at least one extra $100 War Bond today!

mites, fleas, bugs, mosquitoes, gnats, midges, flies, caterpillars, bees, schistosomes, etc. Ordinarily, such affections as to origin are unrelated to work. A few forms of employment directly provide exposure to some of these ectoparasites. Epidemics large and small, may arise on industrial premises that may be traced to ectozoa on a fortuitous basis. Four such epidemics are here reported. The responsible parasite was the grain mite in one episode, poultry mite in one episode, and the rat mite in two episodes.

CURRENT ARTICLES of QUALITY

—*Continued from page 54.*

examinations, rendering first aid and in caring for minor medical cases. In more serious cases the employees are referred to their family physicians, or physicians of their own choice. She was to learn later more about the safety program at Abbott's which was proving successful in cutting down the incidence of plant accidents. Also about the wonderful work of Dr. Robert Watrous, Plant Physician, Editor of an Abbott publication, 'What's New,' and Safety Consultant. Miss Zersen told Sally more about the Abbott organization, the benefits of the various insurance plans and the employee programs. It was almost too much to remember, but among the things which impressed Sally the most, because of Bob's unfortunate experience with no accident or health insurance whatever, was the Abbott hospital care plan, which provided generous benefits both for employees and their dependents. She found that after remaining with the company for 90 days she would become eligible for the employee hospitalization plan which provided for 70 days at any hospital which she or her family physician might designate, with allowances of $5.00 a day for room, surgical fees up to $150.00 and $25.00 additional for laboratory tests and x-ray fees. Sally was surprised to learn that the company paid all the premiums for this insurance with no expense to the employees, provided she availed herself of the complete health program which would provide $15.00 a week for a period of 13 weeks if she was ill or laid up by an accident. This benefit would begin on the 8th day of illness, or, in case of an accident, on the first day. This plan also provided for the payment of $750 in case of accidental death and total dismemberment, or graded indemnities for partial dismemberment regardless of whether the accident occurred at work or away from the plant. The cost for these features is only 52 cents a month. Next was the employee dependent's hospitalization plan which provided for the same benefits for her three children at a cost to the employee of only $1.50 a month. Another feature she later remembered was that should several operations become necessary in one family, there were no limitations as to the number. Sally promptly said she would like to take advantage of this plan after the usual waiting period. She was pleased to learn that the company allowed 10 half days per year, at half pay, in cases of illness when approved by the house physician. One of the earlier features of the Abbott program was the Group Life Insurance Plan which provided payment to the employee's estate of $1500.00 for the small sum of 55 cents a month, in Sally's bracket, with no medical examination. Sally became insurance minded when told that the combined benefits of the entire program would cost her less than 10 cents a day or about $2.57 a month. When she became better acquainted, Sally heard many of the girls say that they didn't realize at first the value of the Abbott Hospitalization Program, but later they had seen so many cases where the benefits were a real boon to the employees and their families that they were completely sold on the plan. She heard, too, some of the men say that there was really no need for socialized medicine, or government-controlled compulsory sickness insurance where such industrial plans were available. They talked about the extensions of medical care, not only through industrial insurance plans, like Abbott's, and many other firms, but also about the magnificent program of the Blue Cross and other splendid voluntary insurance groups which provided low-cost plans for prepaid hospital care with free choice of physicians and hospitals. Sally was interested because of Bob and told him all she learned about it. Quite naturally, Bob was pleased with Sally's progress and remarked, 'Gee, I'd like to get a job at Abbott's, too, when I'm well'."

Hypertension

MILTON BENJAMIN ROSENBLUTH, Associate Professor of Clinical Medicine, New York University College of Medicine, "The Practical Management of Hypertension," in *Bulletin of the New York Academy of Medicine*, November, 1944. Summary and conclusions: "(1) All cases of hypertension should be studied to rule out primary renal disease. (2) This is especially important because of the possibility that the primary renal disease may be unilateral and amenable to surgery. (3) In cases of essential hypertension one should bear in mind that the disease may be latent at birth and develop gradually over several decades; hence the importance of studying each case in order to obtain a more accurate orientation and a better judgment of the outlook. (4) In most cases it is not necessary to try to reduce the arterial tension and it is not even clear that this is always an unmixed good. (5) Thiocyanate is the only medication that in any considerable percentage of cases lowers the arterial tension. (6) The cases in which surgery is indicated are few and the benefits still problematical but this form of therapy is receiving increasing attention. (7) Treatment by renal extracts and by amine oxidase has a reasonable background but practically these methods have been unimpressive. (8) Psychotherapy has a place in the treatment of every case of hypertension. Whether or not it is useful in removing some neurotic mechanism that may be related to the development of hypertension, it can always help the patient adjust to the limitations imposed by the disease."

No-Man's Land

EDITORIAL, "The No-Man's Land of the Small Industry," in *American Journal of Public Health*, December, 1944. Text: "One of the most interesting sessions of our last annual meeting dealt with the admirable program for health education of industrial workers developed in the Fort Greene area of Brooklyn. Such a program, however, depends for its efficacy upon the availability of the actual health services for which health education prepares the way. There is little gain in teaching the worker about the control of tuberculosis if the air of his shop is laden with silica dust; or in emphasizing the value of health examinations and prompt treatment of disease if doctors to make these examinations and supply this treatment are not at his disposal. We have no comprehensive knowledge of recent developments in the field of industrial health service. Just before our entry in to the war, the Council on Industrial Health of the A.M.A. presented an illuminating study of the situation at that time.[2] This study cited the results tabulated below:

Size of Plant	*Number of Plants*	*Number of Employees*
Less than 100 employees	143,615	2,260,956
100-500 employees	13,656	2,885,670
500-1,000 employees	1,660	1,333,323
Over 1,000 employees	978	2,262,282

A survey of a sample group of plants made by the Council showed that in the group of very small plants (less than 100 employees) none had a full-time physician and only 3% had an industrial nurse. Of the small plants (100-500 employees) only 18% had full-time medical service and only 19% full-time nursing service. In the medium-sized plants (500-1,000 employees) 21% had full-time medical service and 52% full-time nursing service. In the large plants (over 1,000 employees) 47% had full-time medical service and 85% full-time nursing service. If we assume that the sample studied was representative, 79% of all the industrial workers in the country had no full-time industrial medical service. Bloomfield and associates, in a survey conducted by the

—*Continued on page 1052.*

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Volume 13 DECEMBER, 1944 Number 12

Call for Leadership

As noted in "This Month" (page 3), the contents of these pages have a distinct public health significance. The leading articles emphasize the close and interdependent relationship between public health and industrial medicine. They phrase the theme, but the editorial, "The No-Man's Land of the Small Industry," quoted from the current *A.J.P.H.* (page 1010), sounds the obbligato. "What can be done about the small plants? . . . There must be leadership. From what source can this leadership come? . . . 'through the joint agencies of private practice and public health administration' . . . the need for expert industrial hygiene counselling" —these are among the major persuasions to the suggestion that "the health officer who will take over the first step of a survey of local conditions (in cooperation with industry and with the medical profession) will open the door. . . ."

This is a concrete and practical suggestion, deserving the whole-hearted support of all who are interested or who may be affected. The business of industrial health will necessarily evolve as a cooperative undertaking. Management and labor, public health, insurance, medicine and hygiene all have their interests, each has its place. They furnish the three elements, industrial, legal and professional. The industrial seeks to compromise between what labor thinks it wants and what management believes it can afford; the legal has the limitations of the scope of public health and the compensation interpretations; the professional, resting on its ethics, has to wait till it is asked. The three have parallel courses, close, but not merging.

So far as the small plant is concerned, this has been the situation for many years. Innumerable suggestions have been made, and many plans offered. Some of the suggestions are good, and some of the plans have been translated into effective health services. But the total aggregate of both has hardly more than dented the small plant situation.

It is realized, of course, that progress in a matter of this kind is slow. But the slowness need not be also characteristic of the effort toward improvement. The recognition of this fact no doubt has as much to do with the present call for leadership as does the fortuity of the chance for any one of the interested groups to step out in front by assuming leadership. Not all of the groups may want to step out in front—management, for example, is the least likely to. One of the others may. Several *can* furnish leadership of a sort—and any leadership is better, perhaps, than none at all. Unless it is the medical, however, it will be the wrong one. And in any event—whichever it may be, even the medical—there is more than leadership involved, for it is inescapable that leadership in *this* matter will require also salesmanship, and that of a high order.

Any leader will find, in general, that warnings have lost their force from repetition, preachments have failed, threats of government interference merely antagonize, pleas regarding the need fall on tired ears, even the economics of the human and efficiency values no longer attract. The time is at hand, therefore, to sell the idea of *wanting*—to start here, to marshal there, to accelerate somewhere else the influences that will inspire in each plant ownership and management the *desire* for its maximum of industrial health possibilities.

The idea of such selling is not new. It has been talked about, and urged, in medical meetings and elsewhere for a long time. The only thing new about it is the imminence of action—by one or another of the agencies interested in the subject, and probably the wrong one, because, in the vernacular, "everybody seems anxious to be getting on the band wagon—except the band."

In the meantime, the local health officers might well undertake to open the door. But for what? For the physicians to enter? But are they available? If they are available, are they interested? If they are interested, by what standards of industrial medical practice will they proceed? In short, is the medical group ready to assume the leadership? Is that part of the medical group which is experienced in industrial medicine prepared, or even preparing, to offer the part which is not so experienced the elements, the standards, with which and by which it can start out under the auguries of probable success?

These are considerations underlying the salesmanship that will be necessary. For even the supersalesman who will ultimately do the job needs something to sell that is more tangible than most of the inchoate, un-medically formed and directed ideas thus far offered.

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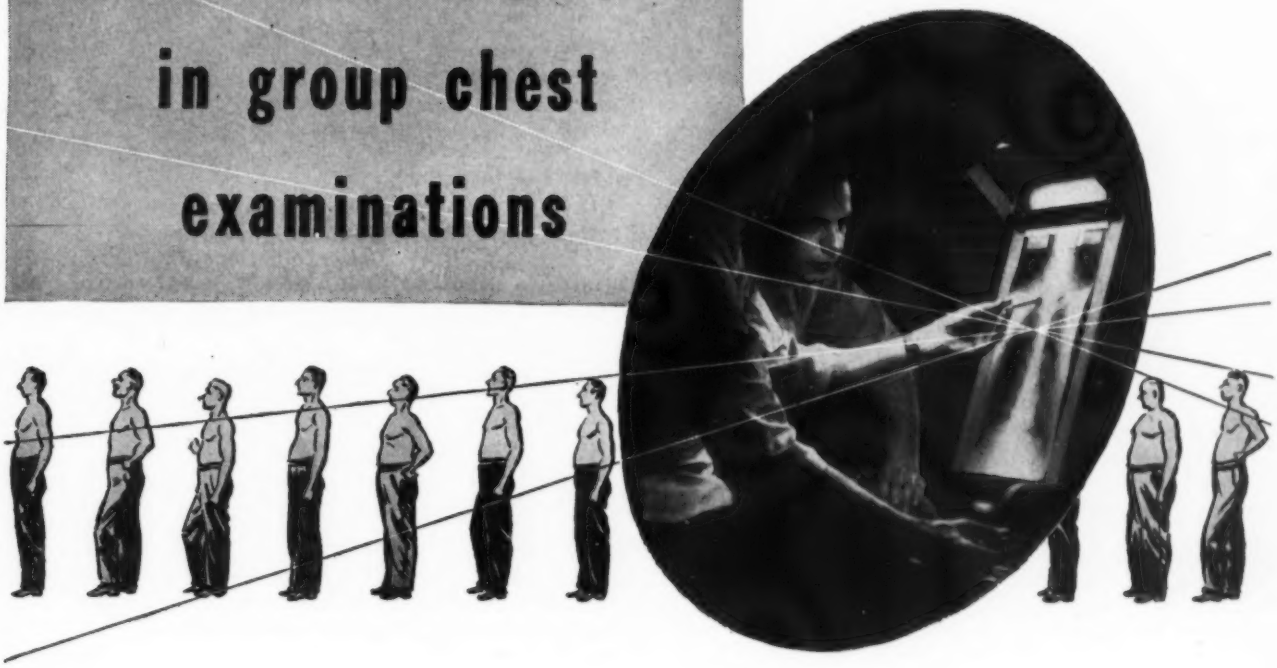

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Dermatitis Bullosum of Acne Area

—Following Adhesive Tape Contact on Left Arm and Thorax, Possibly Due to Tricresyl Phosphate—

L. EDWARD GAUL, M.D., and DENISE HENNEGER, A.B.

THERE has been observed an unusual dermatologic reaction. An aerial splint was secured in place by about 775 square centimeters of adhesive tape applied to the left arm and thorax. After two weeks of contact the acne areas of the body developed a profuse seborrhea followed by vesicles which later became bullae. The skin contacted by the tape showed no visible reaction. This brand of tape had been on the market many years. Recently, tricresyl phosphate was used as the plasticizer because of war shortages of the preferred plasticizer.[1]

Report of Case

E. O., white, male, age 35, telephone lineman was referred for a dermatitis of two weeks' duration.

HISTORY: The patient had always enjoyed excellent health. An insurance examination 14 years ago was satisfactory. He was rejected for military service because of a right inguinal hernia. His average weight was 77.3 kilograms. On August 2, 1944, he tripped walking down an embankment and fractured the left humerus. This was corrected by an aerial splint which was secured in position by adhesive tape. Toward the middle of August the acne areas developed a seborrhea. As this progressed there was an associated loss of appetite and a feeling of "sluggishness all over." There was sufficient mental apathy to interfere with adding correctly the bowling scores at the local recreation hall. Just before Labor Day several vesicles appeared over the right temporal region. During the next few days the right ear and side of the face, chin and neck became involved. The vesicles gradually reached the size of bullae. Two different salves failed to check the dermatitis. Since the adhesive contact there was a loss in weight of 5 kilograms. There was no history of drug therapy. He never had had acne vulgaris and always had had a "good" complexion.

EXAMINATION: As this patient entered the examining room on September 18, 1944, his face attracted immediate attention because of the degree of seborrhea. A piece of tissue paper pressed against the forehead showed a corresponding area of grease spotting. Closer inspection brought out a disturbing observation. While the skin morphology of the left side of the face was readily discernible that of the right was obscured by a purplish haze. Changing the examining light source did not improve the visibility. Studied inspection disclosed that the lesions were primarily bullae with intervening vesicles. Many of the bullae had ruptured leaving eroded areas about 1 cm. in diameter. The eroded areas protruded slightly, giving a mosaic appearance. This was especially apparent over the infraorbital pad of fat. The latter to palpation was firm and the superior and medial border showed a faint purplish pigmentation. The patient had a strong phenolic odor about him, so strong that it lingered in the examining room the rest of the afternoon. It was detectable on my hands the next morning. A tentative diagnosis of impetigo bullosa was made.

COURSE: The patient was advised to clean the face with a mild soap solution daily and to apply an astringent colloidal clay lotion. The usual sterile precautions were observed. He returned September 25, 1944. During this interval the entire process had become more severe. The left side of the face, upper chest and back

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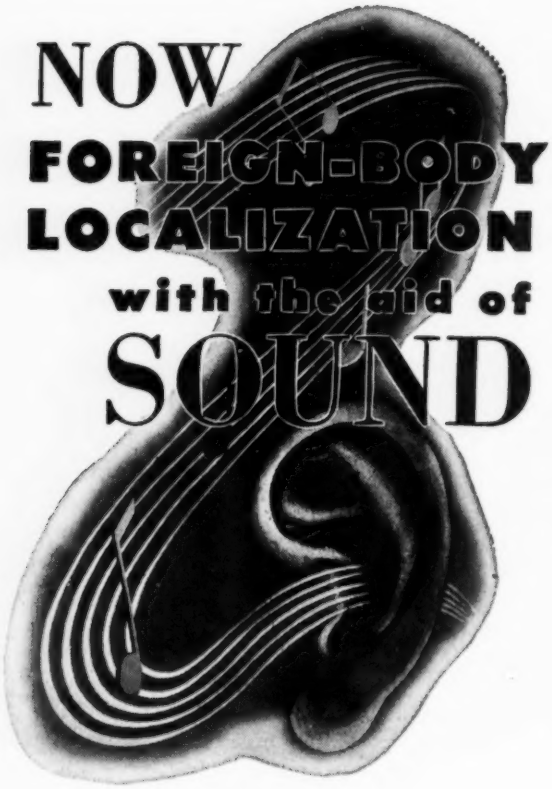

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and shoulders were involved. Some of the bullae measured over 2 cm. The purplish haze was now discernible over the left side of the face. The symptoms noted above were likewise more severe. A complete physical examination was not remarkable. The routine laboratory studies were within normal limits except for the hemoglobin determinations—Sahli—which on two occasions was 12.1 grams. Again the strong phenolic odor was apparent, almost to the offensive point. At this time the tape was suspected. The patient was advised to have his physician remove it and substitute plain gauze to retain the splint. The following day this was done, and three days later the seborrhea lessened, the purplish haze vanished and, in the patient's own words, "a load seemed lifted from my shoulders." Within a week all lesions had cleared except for final epithelization. His appetite returned; the weariness was gone. Even the mental apathy disappeared because he was back at the recreation hall adding the bowling scores with his former skill.

Investigations

HISTOLOGY—A biopsy specimen was obtained from a crusted bullous lesion over the right axillary fold. The specimen showed a crusted dermatitis with considerable infiltration of round cells about the blood vessels and also evidence of comedo formation.[2]

PATCH TESTS:—Patch tests were performed October 10, 1944, with the salves—brown and white—the patient had applied. These were negative after 48 hours.

October 13, 1944, patch tests were performed with various adhesive tapes. In order to avoid inhalation of the substance occulsive technic was used. A number of brands of adhesive were tested. The one in question was tested front and back because the plasticizer was used only on the water-repellent backing. About two square centimeters of each were placed on the anterior forearm and covered with cellophane. The latter was held in place by several layers of elastic adhesive followed by wrapping with an elastic bandage. There was no odor detectable at the site. The patient was instructed to return in three days, sooner if any local or general reactions appeared. After three days the seborrhea recurred and there were several pea-size bullae over the right side of the neck. He again complained of the symptoms previously described. The purplish haze was not noted. The patch tests were left in place another four days—total of seven days—during which time the seborrhea subsided and the bullae underwent early involution. There was no reaction at the testing site. Significantly, the phenolic odor had vanished. It was not detectable in the two original piece of adhesive nor did the skin hold the slightest trace of it.

Summary

THE evidence in this report, while not conclusive, does suggest that the plasticizer tricresyl phosphate or its decomposition product (cresol) was related etiologically to the dermatitis. It might be an isolated instance of sensitivity or the reactions observed might disclose a drug possessing unusual dermato-pharmocologic properties. Apparently, it can penetrate a normal epidermis without causing any reaction and after absorption exert a specialized reaction in that portion of the cutaneum richly endowed with ectodermal glands. A drug having such properties might prove of great research value in the field of seborrhea and acne vulgaris. To be able to induce seborrhea and comedo formation by a drug would parallel in importance the discovery that alloxan[3] can cause diabetes. It is possible that the

NOVEMBER 14, 1666...

DR. SAMUEL PEPYS, in his famous diary, wrote: "*Here Dr. Croone told me that at the meeting at Gresham College tonight, there was a pretty experiment of the blood of one dog let out, til he died, into the body of another on one side, while all his own run out on the other side. The first died upon the place, and the other very well and likely to do well. This did give occasion to many pretty wishes, as of the blood of a Quaker to be let into an Archbishop and such like; but, as Dr. Croone says, may if it takes, be of mighty use to man's health, for the amending of bad blood by borrowing from a better body.*"

DR. PEPYS' notation that transfusion "may if it takes, be of mighty use to man's health" was surely prophetic, for today it is of tremendous therapeutic importance.

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purplish haze noted might be due to a change in the transmission and reflection of light by the skin as a result of the dermatitis.

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Child Health Education

—For Parents in Industry—

H. GLENN GARDINER, M.D.,
Medical Director, Foote Bros. Gear & Machine Corporation, Chicago

THIS subject is not really new to any of us. However, many of us, through habit or lack of intimate contact with its activities, in one way or another have shelved it or think of it in other terms.

It is unusual, no doubt, to have one who has always identified himself with industrial medicine talk on this subject. When invited to speak before this group on this subject I was a little surprised, but, on second thought, I felt that if you were interested there must certainly be a reason. I do not know whether your interest and its relationship to industry are on the same basis as mine; perhaps from each other we may learn some of the potential phases of such work and fit them together inseparably in the final or aggregate picture. To say that this is a matter which should be of great interest to everyone, that it is of real significance to industry, is to put it mildly. Obviously, then, it must be a real concern of industrial physicians, industrial nurses and public health nurses.

Why do I say this? The answer is also the answer to the "why" of child health education. It matters little what our activities are, or may have been, or may be expected to be in the future. We all know the tremendous morbidity and mortality of childhood diseases, such as infantile paralysis, acute rheumatic fever, diphtheria, whooping cough, typhoid fever, pneumonia and meningitis. We remember too that measles, mumps, scarlet fever, tuberculosis, ophthalmia neonatorum and small pox, as well as others, have had their day as bugaboos or pitfalls of childhood. In more recent times child nutrition has become of demanding interest. We know how the control of some of these things as it now exists has much to do with our present concept of life expectancy of the newborn. Every year we see an advance in the expected life span of any given individual, if thought of in terms of the group. Pre-natal and post-natal care clinics have had their part in this development.

Probably a far more generally recognized and dramatic answer to the why of child health education has been the revelations of the state of physical and mental health of the young adulthood of this nation brought out by the war. True, the activities of the national selective service have dealt principally with the male population, but there is no reason to believe the females would differ materially if surveyed in so large a nation-wide group. But let's not get too excited about it. Let's not feel that as a nation we are a failure. Let's not develop the thought that public health and allied activities have failed utterly in their appointed tasks. There were similar recriminations following the draft examinations for World War I.

Presented at a meeting of the Public Health Nursing Section and Industrial Nurses Section, Illinois State Nurses Association, Chicago, November 11, 1944.

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The large number of rejections has been explained not by deterioration of the nation's physique but by the fact that our national standard has advanced. We are not developing a group of young men and women less sturdy than those of our other allies or, in fact, our enemies. The young men of 1942 were found to be about an inch taller and correspondingly better developed than were their predecessors of 1917 at the same ages. The boys and girls of today enter college both younger and taller than their predecessors of 20 to 30 years of age.

These data are not presented with the thought of satisfaction of our desire to make this, in all ways, the outstanding nation of the world. It is not meant that we should in any manner curb our wish to serve fully in lifting humanity out of illness and physical or mental inadequacy. We know our goal is high, and the chances are that we may never solve all the angles, for, after all, new perspectives and demands are constantly arising. These we must face with renewed vigor and ever cognizant of the challenge to our professions.

As a nation we are not so bad. Perhaps inadvertently we have expected too much too quickly. The large groups of people found not fit for military service lead one to think so. Many of these 4-F's only yesterday thrilled the world with their physical prowess on the fields of sport in every test known to modern man. After all, I can't believe that any of us, in our hopes and aspirations for the bigger, better, healthier man, has thought to produce a precision war machine. By what concept do we decide that a man who is adjudged unfit for the rigors of combat on the fields of battle is below normal? He certainly in many instances is well fitted for the demands of the life he meets in peace. Just what constitutes the normal? In most things it is the aggregate of that large so-called average group. What we think of as normal today may not necessarily hold true a generation from now. Perhaps our present-day standard as conceived by the Armed Forces is too high. Certainly 4,000,000 out of 13,000,000 draftees examined have been rejected; and 600,000 of them unfit by reason of one or several mental or nervous manifestations is too significantly big to ignore. Yet let's not assume therefrom that we are becoming a nation of insane or emotionally-fagged humanity. I sincerely believe that any of us over the years—from the time our parents conceived us on—must bear evidence of our environments. Whether it holds fully in this instance I can't say. Most automobiles have a nicked fender or two, and a chip of paint off here and there, and a little rust on the chrome trim. We can, we must, and we will do our utmost to modify the environmental factors so that humanly our nicked fenders, chipped paint, rust, cracked blocks and worn gears are minimal.

We are told that nearly a third of all dwelling units in the United States are without running water of any kind; nearly a fourth are without electric light; over a third are without flush toilets—and a small but appreciable number have no toilet facilities at all. At the same time let's not forget that there were many conditions recorded which were known to be preventable either directly or indirectly. Colonel Leonard Rowntree, Selective Service Medical Director, tells us that: "Instead of a country of rugged, virile men, we have a lot of 5-D's—defective, disabled, deficient, disordered and diseased."

Conditions which are the result of preventable diseases or the result of failure to control controllable conditions are our responsibility. We must face this

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responsibility. The process of doing this may need to be socialistic in some respects. Yet, remember, our professions are dedicated to just that end. It is unreasonable not to hold great interest in the housing, clothing, feeding and teaching of every man, woman and child, since these environments are so very inseparably related to their physical well being. Needless to say, every man and woman was once a child, and most of our children will some day be men and women. Even so, a certain amount of their thinking must be done for them. The smaller the amount necessary the more obviously effective has been their education.

NOW WHAT has this to do with child health education, and what is to be done about it? J. C. Furnas, a well-known writer, had an article entitled, "Why is He 4-F? Are You to Blame?" in the September, 1944, issue of *Ladies Home Journal*. He said that the following five safeguards in your community could prevent another 4,000,000. First, "A pre-natal and pre-school clinic. Weak bones, bad teeth and eyes are formed before a child is born. The right diet and care for every pregnant mother means huskier, brighter babies. Each child is entitled to a right start in life, whether his parents can afford it or not, and he must have doctor's care during his crucial pre-school years." Second, "Better nutrition; free hot school lunches provide one-third of a child's daily food needs. But what about the other two-thirds? A good nutritionist attached to the school could quickly discover each child's 'hidden hunger' and see that he gets the foods he needs during school hours." Third, "A school-child clinic. Every school child should have available at one clinic a dentist, a doctor, an eye and ear specialist, and a psychologist down the hall to untangle his emotional mix-ups. Regular physical examinations are not enough; defects must be followed up and corrected." Fourth, "Good hard outdoor play. One in 16 American schoolboys joins the Boy Scouts. What about the other 15 in your community? Who sees that they get plenty of constructive play? In the last two years of high school, almost half our children get no physical training at all. What community sports and recreation center is available for them?" And last, "Community health program. Germs and epidemics spread in unclean school washrooms; have you inspected your schools lately? Undulant fever and tuberculosis come from infected milk; how safe is your community's milk supply? Six in every 1,000 men in the draft were found blind in one or both eyes; does every newborn child in your town get the silver nitrate treatment to prevent blindness from gonorrhea?" No mention at all of industry, the hub of the nation.

That is what an influential layman writes. His message has gone out on the pages of an internationally known and read magazine of large circulation. He has numerous professional contacts which at least should have, and indeed may have, tempered his thoughts. That is the kind of thinking which is becoming increasingly popular in some groups. As you know these thinkers go on and on to flowery and, on paper, all-inclusive medical care from the twinkle-in-the-eye stage to the inevitable grave. Regardless of politics, the majorities of our professional groups immediately realize the fallacy of such trends. They are, I believe, un-American and undemocratic. This nation is founded on certain democratic principles. It should succeed or fail, as the case may be, with these principles unsullied. Meddling may very well prologue the failure. The mills of democracy grind very slowly, but they produce an especially finely-ground product. So do the mills of generation after generation of life itself. It may not be too wise to attempt to hasten too many of these processes too much.

With the re-inauguration of the administration we again renew hope in intelligent progressive thought and action, and aspire to turn away from the pell-mell head-on rush into enslaving social reforms. And so we would change all of the musts to shoulds in the five proposed safeguards I have mentioned. And we would add more safeguards, and sell the public on the value and usefulness of such service whenever such service is practical. There are many physical factors, such as size, type and location of communities, which would in most instances necessitate modification of such a program—individualizing, at least, community-wise. Therein lies the success or failure of many of our excellently conceived programs of national scope. The old adage of leading a horse to water is still quoted with sound basis.

Such an educational program would obviously take considerable time to bear fruit, but undoubtedly, in the complete picture, would therefore be found bearing more fruit, and better fruit, for a longer period of time. The big question is "how?" That's where you and I come in. There is a great amount of child education being attempted in one way or another; some of it as socialistic experimentation, some of it a clumsy effort to protect to some degree the child whose economic environment does not adequately provide. Practically all plans, however, act by devoting their efforts to and through the child. Too little effective contact is brought to the parent. Today's child is tomorrow's parent, but many of his lessons well learned today are forgotten, refuted or pushed aside by tomorrow—largely by the visiting and elbowing of a large number of people whose misconceptions and inadequate learning overwhelm them. Working on this thought, then, how do we go about educating the parents? How can the parents be reached in greatest numbers and in willing-to-learn groups? Obviously in the place where they earn their livelihood, industry.

WHY should industry take on such a large assignment? What has happened to our existing public health programs? How will industry fit in? Well, one at a time, here it is.

Industry is basically, above everything else, thought to be a matter of cold and impersonal economics. Industry has learned that some modification of the cold and impersonal pays high profits in many ways. Industry has been making physical records, in some degree, of most of its employees and has found the same things that Uncle Sam found. Those of us in industry weren't surprised at the figures released. Industry as a whole has not needed to set so high a standard. But industry does know that many of these rejectees have been costing them much over these many years. These same people have been working inefficiently for the same reasons that they are unfit for service. They are not topnotch producers; they do not produce top quality. Their preventably poor vision, nervous unbalances, emotional instabilities, physical weaknesses and deformities have been one of industry's problems all the way. Some of our larger and better-organized industries, by selective placement and classification, are able to place these people where they are most apt to do the best work with the least danger to themselves and others. This is infinitely more profitable and morale building and loyalty encouraging than to act otherwise. But even this is not as practical in the final

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analysis as acting and working on and for the child of today, so that he comes to industry tomorrow without blemish or handicap. Since industry will pay the cost either way it is obvious that there is greater gain, greater good will, in doing it the right way, and less cost in the ultimate.

This isn't new thinking entirely. At least as far back as June, 1926, it was given some attention. Dr. C. O. Sappington, then medical director of Montgomery Ward and Company, at Oakland, California, published a paper in the *American Journal of Public Health* entitled "Relations Between Health Supervision in Schools and Industries." In the closing paragraph of the discussion and suggestions at the end of the paper, he says, in substance, that it seems rational to believe the basis for industrial health work may be largely grounded in school health supervision, and that the human product may be improved in the direct ratio in which school health work becomes more efficient. Gradually this should cause industry to become more than casually interested in the raising of standards of school health; in fact, one may say that there might come a day when the larger industries would contribute in a material way to the advancement of health work in schools. A real program of preventive medicine in industry could thus be developed.

It would be inconceivable that industry could do this job well without using the trained personnel and some of the *modus operandi* of the public health groups. This could be done either through collaboration with the public health workers, or through more direct association as seems best in a given locality, or as the result of careful study and counsel with all interested and involved groups. Through industry it would be given a healthier backing, with capable guidance, and without political aspects.

There would be many small communities so remotely related to industry in the ordinary sense that they would depend on public health crews in periodic rather than constant availability to bring to them the advantages offered the other groups. However, it should be kept in mind that most communities do in some sense supply some manpower to industry, and thus it would be advantageous to include these communities in the invitation to participate. There would be more good will for industry, and greater incentive generally for cooperation.

Many large industries already make it the practice to hold lecture and entertainment forums, and to offer counseling service, payroll insert information, pamphlet service, family health service, visiting nurse service, adult education, etc., etc. It has been necessary in the community built entirely around an industry or a few industries. It has proved desirable in the larger community where the employees of a single industry comprise large numbers of long-time workers —father or mother to son or daughter jobs, etc. Dramatic clubs, musical organizations, sporting teams, collective or cooperative buying, country club groups, auxiliaries and other groups are recruited from single or grouped industries. With such a nucleus the power of presentation of educational influence regarding health would be tremendous if handled properly. This thing is big enough to warrant participation of people who ably construct programs which instill the desire, the want, in people for almost anything on earth, yet nothing they educate people to want is so fully useful to mankind. Long term, intelligent, persevering activity is a minimum requirement. Purposeful advertising and propagandizing in such a crusade should certainly be as effective as has been the case in the selling of cereals, foods, clothing, etc.

The larger industries with their nuclei of organization, could get off to a running start. These industries could trade ideas and lend personnel to each other and to smaller industry and for small communities. Smaller industry would probably best function by creating like groups in cooperative or sharing fashion, trading ideas and experiences with, and borrowing personnel from, larger industries or groups.

The use of all known and to-be-developed educational methods is indicated. Reading materials, demonstrations, audience participation, posters, movies, public address systems, round-table discussions, symposiums, quiz programs are, to mention a few, all adaptable. All phases of related subjects should be so treated, and to the degree that facts of nutrition, personal and mental hygiene, dental responsibilities and all the rest become as universally known as have been our cigarettes and wash-day needs.

This is the way I look at child health education. Let's not shove it down the throats of the children or their parents. Let's lead them to the water in such a way that they will want to drink and never lack in the thirst.

Health in Small Industrial Plants

—Outline of a Program for Improvement—

EDWARD P. HELLER, M.D.
Kansas City, Missouri

HAVING been requested to discuss this subject from the point of view of an industrial physician, I hope that what I have to say will dovetail into the program as envisioned by hygienists and engineers, co-workers and collaborators in any successful program which will satisfy management and labor.

Every medical student, when taught the treatment of disease and disability, is made to begin with prophylaxis and outline those measures, if known, which will prevent the particular disease of disability. Every doctor with this background of training welcomes the opportunity to assist in the prophylaxis of disease by whatever means the particular situation demands. Therefore, I feel it particularly fortunate to be associated with a group in this community which has for its object the prophylaxis of industrial disability and disease—in short, safety.

DR. STANLEY J. SEEGER, Chairman of the A.M.A. Council on Industrial Health, has said that "the problems of industrial health are not static," and that "science has outstripped the advancement of social and professional organizations which would make possible the fullest utilization of our knowledge." This is another way of saying that, in the light of what we already know, we are not applying scientific means to best advantage in handling industrial health problems.

Three years ago, impelled by the demands of war production and in anticipation of greater demands, wheels were set in motion under the auspices of the Jackson County Medical Society's Committee on Industrial Health, of which I was chairman, and made to mesh with other wheels in allied professional groups. By the spring of 1942 we had compiled a list of physicians and surgeons fitted for and willing to undertake industrial health work in plants springing up all about us. When the State Medical Association met here we had completed plans to include in a Central Committee on Industrial Health representatives from all groups in any way responsible for maintenance of a healthy working community. This committee has

Presented at a meeting of the Board of Governors, Kansas City Safety Council, November, 1944.

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Bulk Candies—peanut brittle and chocolate coated nut caramels, almonds, peanut clusters and raisins —calcium 0.04 Gm., phosphorus 0.09 Gm., iron 1.5 mg. in 2.15 oz. (from 5 to 20 pieces, depending on kind, make up this quantity).

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It is interesting to note that the values given compare favorably with those in weight-equivalent quantities of 5 commonly eaten desserts, cakes, cookies, ice cream, fruit and other pies, and puddings.

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representation from the ranks of medicine, industrial nurses, U. S. Public Health Service, Tuberculosis Society, V.N.A., state, county and city industrial hygiene organizations, insurance carriers, labor, Chamber of Commerce, and the Social Hygiene Society. Somewhat later the Safety Council through Mr. Burns, signified a desire to be a party to this undertaking and was welcomed at a time, unfortunately, when the committee was undergoing a transition from evangelistic eagerness to watchful waiting—waiting to see if industry really cared to avail itself of the facilities, the talent and the service then at its disposal.

Perhaps if I had come before the Safety Council with our program it would at once have taken root and would have become a flowering tree by now. Certainly, through interlocking memberships, by publicity of our symposia, to which industrialists, insurance carriers, labor and the allied professions of nursing, dentistry and hygiene were invited, there seems, no doubt that most persons in this room must have known of our efforts.

We learned early that plants employing many hundred or thousands of workers need not concern us too much, as they had long since learned the wisdom of good plant sanitation, safety and medical-nursing service. We used every device available to us to interest small plants in the benefits of part-time medical-nursing service and, I must confess, were not very successful. Through the help of the Chamber of Commerce a panel program was set up and DR. VICTOR HEISER brought here as a drawing card. Only six management representatives appeared in the audience. During the fall of 1942 an excellent meeting was held at the Muehlbach Hotel in which DR. CLARENCE SELBY, of General Motors, the U.S.P.H.S., local labor and local management were well represented on the panel. In the spring of 1943 several nights each week for a month were given over to lectures and demonstrations by outstanding industrial physicians, hygienists, engineers, dentists, and tuberculosis specialists, brought here at considerable expense to the local medical profession—all with the purpose of exciting interest of small plant management in the good to be derived from in-the-plant, part-time or full-time medical-nursing service. With human rehabilitation and vocational education looming as an urgent need we presented DR. HAROLD VONACHEN to our local profession and guests in May of 1944, to outline the Peoria Plan in which he is the prime mover. The few that attended these meetings out of the many who signified good intentions were certainly rewarded, but it is evident that a still better approach is needed, and that is why I welcome this opportunity to speak to the Safety Council.

IF PRIVATE American industry is to take the initiative, this would seem to be the time. Many of the physicians who might have served have gone into the Army, the Navy or the Public Health service and some have died since our list was first compiled in 1941. Many of the industrial nurses have also gone into foreign fields, but, skeleton though it be, here is the plan which, it seems to me, we should encourage small plants in this community to adopt. I need not tell you of the financial advantage of good health. Labor also knows it and is clamoring for it. Will management with 300 employees or less be persuaded in time?

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3. Determination of need for, and establishment where indicated of, a full-time or part-time nursing service which will supplement the services of the designated plant physician (who may be part-time or full-time).

4. Establishment of standing orders and procedure for nurse in absence of physician.

5. Collaboration with management of safety engineer, industrial hygienist, physician and nurse by joint conferences at stated intervals.

THIS program is purposely reduced to its simplest terms in order to fit into the present compensation insurance program. It contemplates the SALE WITH THE CONTRACT of a minimum of medical-nursing-hygiene service BY THE CARRIERS. It must be sold as "package" as other services are sold. It contemplates the selection of a doctor from the insurance carrier's panel, or agreement upon a doctor mutually acceptable to management, the carrier and, perhaps, labor. It contemplates a choice of a nurse, or nurses, or the purchase of nursing service from the V.N.A., where part-time nursing suffices for the particular plant. It contemplates payment of physician and nurse for services during inspection periods unless both are employed on a stated salary and are using time normally devoted to the company or the carrier.

From a number of sources estimates may be given to management on costs of medical and nursing service and costs of adequate equipment. The city Health Department stands ready to aid through its industrial hygiene department in special analyses.

It is plain from experiences in Detroit, Philadelphia, and elsewhere that management must be sold on the advisability of this type of service. Labor, in some localities, is demanding and getting better plant hygiene where it should not have had to take the initiative. In addition to the benefit of a program of prophylaxis or safety to the employees in terms of man-hours saved from injury and disease, there is the well-known advantage in money saved by the employer, good will gained and health education fostered.

I submit this outline as a basis for study and urge early action upon the matter even though it represents a slight departure from the old method of letting the employer get his employee to the "company doctor" at his downtown office where he spends six to eight hours each day and usually knows nothing of the environment or the mechanisms of many of the injuries he treats and MIGHT HAVE PREVENTED.

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1. Brit. Med. Jr. 2:251 (Aug. 24) 1940

INDUSTRIAL HEALTH and DISEASE

March Fracture in Industry

JAMES H. EDDY, JR., M.D.,
Medical Department of the Louisiana Ordnance Plan,
Shreveport, Louisiana

IN THIS WAR as in the last one there have been reported a large number of patients presenting the injury known as march fracture. While this fracture has been described since 1855, only recently has it received much publicity. This sudden interest stems from its relatively frequent occurrence among soldiers during intensive training. This is well brought out in recent papers by Bush,[1] Krause,[2] Flavell,[3] Moore and Bracher,[4] and Barns.[5] Its rare occurrence in civilian life accounts for its being so little discussed outside of military hospitals. Papers by Newell,[6] Stammers,[7] and Drummond[8] describing the occurrence of this injury in medical personnel are interesting and are not unlike the cases occurring here in that no long march was involved.

From *New Orleans M. & S.J.*, October, 1944.

The discovery of three cases of this fracture among women employees of a shell loading plant during a period of only eighteen months prompted me to bring this injury to the attention of industrial physicians.

March fracture, or fatigue fracture of the metatarsal, is a term applied to fractures of the metatarsals occurring without direct trauma. Bohler[9] speaks of these as fractures due to indirect injury. The fracture usually develops at the end of a long march, or, as in our cases, after work involving long hours of walking or standing on concrete floors. The second or third metatarsal is the bone most commonly affected.

The cause of these fractures is difficult to understand. Just why a foot that has borne weight throughout the individual's life should suddenly weaken and break is not clear. The theory of Brandt[10] as quoted by Krause[1] seems most reasonable. To use Krause's own words: "These fractures are the result of rhythmically repeated, subthreshold mechanical insults, acting by summation, to a point beyond the capacity of the bone to bear stress."

The patients seen here have all stated that while at work they noticed pain over the dorsum of the foot in the metatarsal region. There was no sudden acute pain but more of a gradual awareness of soreness in the foot. The pain was especially noticeable when bearing weight on the foot. In no case did the patient present herself for examination before several days after the onset of pain. Because no injury can be remembered, the patient expects the pain to disappear and goes about her duties until she becomes too uncomfortable to continue. As is brought out in most papers on march fracture, all of these patients had been engaged in sedentary occupations prior to injury. Examination reveals considerable swelling over the dorsum of the foot with tenderness over the metatarsal region. There is acute tenderness over the site of fracture and pressure on the head of the involved bone causes pain. A patient presenting these findings should be suspected of having march fracture and x-ray study is indicated.

The x-ray appearance is characteristic and will vary according to the length of time that has elapsed since the onset of the condition. In the early stages a fine hair-line fracture will be seen, provided the x-ray technique is perfect. In order to show these fractures, the use of cardboard holders with no-screen film cannot be too strongly recommended. Fig. 1 shows a late first stage with early fuzzy callus just visible at the sides of the fracture line. After two to three weeks there may be some light callus formation about the site of fracture, through which the fracture line can

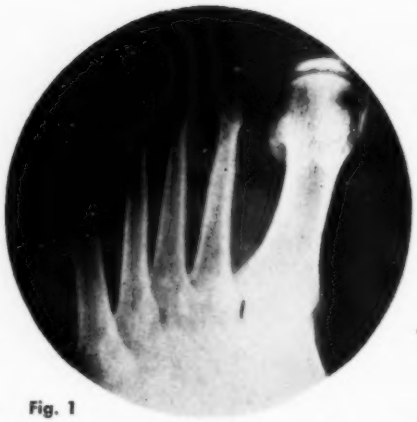

Fig. 1

Fig. 2

be seen as is shown in Fig. 2. The callus then gradually increases in density and the fracture line disappears. These lesions tend to produce rather abundant callus in spite of adequate immobilization. This is illustrated in Fig. 3. The late appearance of the x-ray film is only that of thickened cortex.

Treatment consists of immobilization in a boot cast fitted with a walking iron. The cast is worn about six

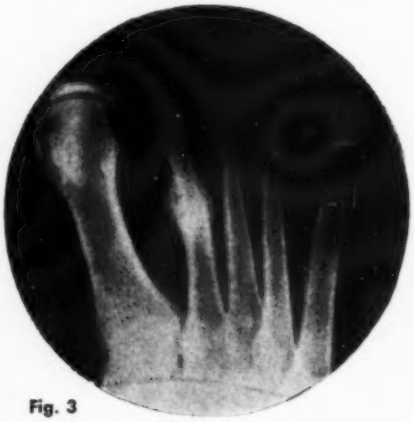

Fig. 3

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Name..... Title.....

weeks and x-ray examination should show firm callus before the patient is allowed to walk on the foot. With a properly fitted cast these employees are able to continue their work.

As is true in all injuries occurring at work, the question of compensability arises. In this type of case the problem is extremely difficult as it does not fulfill the requirements of an accident. In this state, however, the compensation act provides for the payment of compensation in all injuries received by an "employee in performing services arising out of and incidental to his employment." Under this interpretation of the law it has been advised that these cases be accepted under the compensation act.

CASE No. 1: Mrs. B. H., a 44 year old white housewife, came to the clinic on December 14, 1943 and stated that her left foot first became painful about two weeks previously and that the pain had gradually become worse. She had been employed as a munitions handler for several months prior to which she had done only house work. Her work required standing throughout an eight hour shift with the exception of about 15 minutes at lunch time. It was also necessary to walk about 500 yards to her work from the dressing rooms. The walk was repeated at lunch time. It was during one of these walks that she first noticed pain. Examination showed edema of the dorsum of the left foot with tenderness over the metatarsal area. The tenderness was acute over the lower end of the second metatarsal. Pressure on the head of this bone produced much pain. The x-ray film is shown in Fig. 1. She was treated by the application of a boot cast fitted with a walking iron and was able to get about fairly well. Her later course is illustrated in Figs. 2 and 3. She has had no further disability and is back at her old job.

CASE No. 2: Mrs. J. C., a 30 year old white woman who is the mother of four children, came to the clinic on June 18, 1943, and stated that 11 days previously she began having swelling and aching in her left foot. She had continued at work, but the pain had become gradually more severe. This patient had been at work for about six months prior to which she had done only house work. Her work required long hours of walking and standing on concrete floors. Examination of the foot revealed edema of the dorsum that extended up to the ankle. There was some tenderness of most of the foot, but this was severe over the middle of the third metatarsal. Pressure on the head of that bone caused much pain. X-ray revealed a fine fracture line in the third metatarsal that appeared incomplete. She was treated by immobilization in a boot cast fitted with a walking iron. Later x-ray studies showed the typical fusiform callus. She returned to her job and has had no other disability.

CASE No. 3: Miss R. H., a 23 year old white girl, reported to the hospital on June 15, 1943, complaining that she had had pain in her left foot for two days. On June 13 she had noticed that her left foot was swollen and was becoming increasingly painful. She had been at work for one year, during which time she was required to walk the greatest part of her eight-hour shift. The floors of the building were concrete. Before working at this plant she had been a waitress in a cafeteria. Examination showed edema of the dorsum of the left foot with tenderness over the second metatarsal. X-ray showed a fine, incomplete fracture of the second metatarsal. A boot cast fitted with a walking iron was applied and the patient was able to be up and about. Later x-rays were similar to those shown in Case 1. She has had no further disability.

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Curtiss-Wright Industrial Nurses Manual

—Incorporating Medical Department Policy, Recognition of Common Industrial Conditions, and Standing Orders—

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BASIC Objectives of Industrial Nursing: (I) To maintain and improve the health and, accordingly, the efficiency of employees. (II) To educate the employee in accident prevention and personal hygiene. (III) To reduce lost time and absenteeism from injury and illness. (IV) To render industrial nursing services under the supervision and according to the instructions of the industrial physician in charge.

General Instructions

NURSES must refrain from doing anything which might be construed as practicing medicine. Your duties must be performed under the supervision and direction of the attending physician.

II. Nurses must refrain from making any unnecessary or facetious remarks about any employee's injury. A sympathetic understanding of the injured employee's apprehensive state of mind is paramount. Prompt and competent care, with a reassuring word, is mandatory.

III. This manual does not relieve any industrial nurse from the full responsibility for using her judgment based on training and experience in handling emergency cases. Not less care than that suggested by this manual is acceptable.

IV. Nurses are charged with the responsibility of noting on the Accident Report Card, their description of the injury and treatment, followed by their initials. Accuracy of records is imperative. Distinction between an industrial and occupational injury is requested; simple examples of occupational conditions are bursitis and tenosynovitis. Nurses will record their findings in pencil and physicians in ink. Accuracy, combined with brevity, is the ideal for which to strive.

V. On all cases referred by the personnel department or personnel counselors, the weight and temperature of the employee will be noted on the Accident Report Card and the Personnel Record folder obtained, where possible, before bringing the case to the attention of the physician.

VI. An industrial nurse is capable of caring for a minimum of 50 cases daily; after six months' experience an average of 75 cases daily should be reached. Competent, experienced industrial nurses have cared for 90 cases without sacrifice of the quality of nursing service.

VII. Any nurse who has a head cold must wear a mask while doing redressings or caring for minor injuries. All nurses will wash their hands frequently during the work hours with soap and water and always after every case where there is any infection.

VIII. Dressings being removed should be on the side opposite the injured area. The dressing will then be removed by traction parallel to the line of the laceration. This prevents, in most cases, re-opening of the wound.

IX. All industrial nurses should be genuinely interested in their work and devote a part of their time in enlarging their knowledge of industrial medicine by participating in the activities of industrial nursing associations, by suggested study, and by other educational opportunities.

X. Referring employees to outside physicians should be handled in the following manner: If the employee has a personal physician, he must be referred to him. If the employee has no private physician, the names of

"IT's an ill wind that blows no good," the old proverb declares.
And the genius of medical men is giving new meaning to these old words.

For in the ill wind, the shattering, terrible wind of war, they are finding new facts . . . developing new skills . . . improvising new techniques . . . reaping new knowledge that will play a vast, important part in the building of that "better world to come."

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two physicians or surgeons must be given to the employee and he must be permitted to make his own choice. This refers only to medical cases.

Wounds

ABRASIONS—Lacerations; Puncture Wounds; Contusions; Sprains;

A. Abrasions—Lacerations:

The following instructions apply to initial treatment of minor cuts and abrasions and to redressings, unless otherwise instructed by the attending physician: (1) Cleanse the injury and surrounding area for three inches with soap and water. Omit on redressing. (2) Irrigate wound with 30 cc. of normal saline solution. Omit on redressings. (3) Apply an organic mercurial antiseptic—e.g., tinctures mercresin or metaphen. (4) Spray with sulfathiazol powder in atomizer. Discontinue this on redressings after 48 hours, unless instructed to continue by the attending physician.

DRESS AS FOLLOWS:

A. Apply sterile protective gauze dressing. Do not cover entire dressing with adhesive. Air is essential for healing. Do not apply dressings so tightly that they will restrict the venous circulation. Anchor dressing with adhesive behind joints proximal, to the lesion or bandage around the wrist. Use one-fourth inch width of adhesive for finger dressings and one-inch bandages; two-inch bandages for hand or wrist. On small cuts or abrasions, a second dressing may be applied. In these cases, instruct the patient that the second protective dressing may be recoved at the end of the shift. Two redressings daily are unnecessary on all no lost time cases.

OIL REDRESSINGS:

This term is applied to redressings of injured employees who work in departments 104 and 204, press departments, and includes redressings for oil folliculitis. Instructions are the same as above, except as to type of protective dressing. Small dressings are to be covered with collodion. Large dressings on the arm are protected by using stockinet over the regular dressing. It is not necessary to use stockinet for wounds on other parts of the body, protected by clothing.

OIL FOLLICULITIS:

This condition is caused by oil invading the hair root follicle. This sets up an irritation in the follicle, resulting in a mild inflammatory reaction These reddened areas are discrete and they occur only in the hair root. Secondary infection may occur by the oil bringing in staphylococcus from the skin surface, causing oil furunculosis. Oil folliculitis is a primary condition before oil furunculosis can develop.

TREATMENT:

A. *Prophylactic*—Instruct all employees to wash thoroughly and frequently. Apply the protective cream provided in dispensers in the department to the hands and arms before starting to work, at the beginning of the shift and after the lunch period.

B. *Therapeutic*—(1) Ultra-violet irradiation daily unless treatment stopped by the attending physician. Attending physician will see each case every three days. (2) Protective dressings, including stockinet, with strict orders to the employee to return for a redressing if dressing becomes partially saturated with oil.

COMPLICATIONS OF LACERATIONS—Great care must be exercised to detect all complications. They are:

I. *Infection:* May or may not be accompanied by a fever. If fever is present, the infection may be more serious than infection with a normal or sub-normal temperature. The temperature of all cases of suspected infection will be taken and noted.

SIGNS OF INFECTION: (1) Cellulitis —localized skin redness surrounding the wound. (2) Lymphangitis—superficial streaks of redness running from the wound, indicating involvement of the superficial lymphatic system. (3) Lymphadenitis—enlargement of the lymphatic glands, due to infection.

COMMON SITES FOR LYMPHADENOPATHY: (1) Epitrochlear node—at elbow joint. (2) Axillary nodes—in the arm pit. (3) Cervical nodes—neck. (4) Inguino-femoral nodes—groin.

All cases of infection will be referred immediately to the attending physician. If medical service is not immediately available, a wet dressing will be applied. Sulfonamides will not be given, except at the direction of the attending physician. Permission of the industrial physician may be obtained by telephone to give sulfonamides after a description of the case.

II. *Severed Tendons:*

In the case of the hand, there are two flexor tendons and one extensor tendon, to each finger. In the case of the thumb, there are two extensor tendons called extensor pollicis longus and brevis. The size or length of the laceration must be totally ignored in checking tendon function. Small one-half inch lacerations have severed all the extensor tendons at the wrist. Tendons are checked by tendon function. Particular attention is directed to flexion of the distal phalanx of the fingers. If one of the flexor tendons of the finger is severed, it is possible to have flexion of the finger with the exception of the distal interphalangeal joint. It is very important to check this carefully. In every case where there is any doubt, have the attending physician examine.

III. *Nerve Injury:*

This type of injury is not easily detected. Nerves usually contain motor and sensory fibers of neurons. Loss of sensation indicates severance of nerve and this is easily checked. Motor nerve injury, except in the case of large motor trunks, is more difficult to detect because complete loss of function may not occur. Atrophy of muscles supplied by motor nerves occurs as a late sequela. The nerves you will be particularly concerned about are the ulna, median and radial. The ulnar nerve supplies the little and ring fingers and accordingly is easily checked. Location of the injury is a very important factor in determining if there has been an injury to a nerve.

IV. *Scars*

To prevent excessive scar formation or keloid, lacerations over knuckles require sutures and are splinted for from seven to 10 days. Lacerations over joints heal slowly because of the movement and frequently result in excessive fibrosis, which may cause some restriction of function. Scars over joints may also be painful. Any wound showing excessive scar formation should be brought to the attention of the attending physician. X-ray therapy is of value in preventing hypertrophic scars.

V. *Hemorrhage:*

Bleeding is either venous or arterial, and always calls for immediate attention. If the bleeding is venous, direct manual pressure applied over sterile gauze packing at the site of the bleeding usually will control the hemorrhage. Clotting will occur in five minutes. If the bleeding is arterial, and in an extremity, apply a tourniquet. In the upper extremity, a blood pressure cuff may be used. A tourniquet should be released every 15 minutes for two minutes, then reapplied if necessary.

VI. *Foreign Bodies:*

Imbedded foreign bodies may cause discomfort and pain. Any persistent discomfort following an injury should be x-rayed for F.B.

TREATMENT:

B. *Puncture Wounds:* Puncture wounds are divided into two types: (a) Those having an entrance only. (b) Those having an entrance and an exit.

1. Those having an entrance are probed. If the puncture wound is deep, more than one-fourth inch, the attending physician will enlarge the opening to one-fourth inch. The wound will be dressed as described under 2 with the exception that 50 cc. of saline will be used instead of 30 cc.

2. Those having an entrance and an exit must be seen by the attending physician. All sulfonamide medication must be ordered by the attending physician. However, no case must receive more than six days of sulfonamide therapy without a complete blood count. Any puncture wound that does not heal promptly must be seen by the attending physician. Bone infection or osteomyelitis is a serious complication of deep drill wounds. X-ray therapy is of great value in these cases.

SIGNS OF OSTEOMYELITIS: (1) Excessive swelling and edema of the local injured area. (2) Persistent drainage, usually sero-perulent (thin) in character. (3) Inflammatory reaction.

C. *Contusions:*

I. In all cases of contusion, careful consideration must be given to the history of accident. How heavy was the object causing the contusion and how far did it fall? This affords industrial nurses a clearer picture of the severity of the contusion. Conditions that may arise from a contusion

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are: (1) Hematoma. (2) Fracture. (3) Tendonitis. (4) Tendonitis with calcification. (5) Bursitis—usually occupational. (6) Synovitis. (7) Phlebitis—where varicose veins are a pre-existing condition. (8) Concussion. (9) Myositis. (10) Nerve injury. (11) Abdominal visceral injury. (12) Causalgia—sympathetic nerve irritation.

II. All cases of abdominal contusion must be seen by the attending physician. Blood pressures are to be taken every 20 minutes.

III. All head contusions where there is a history of loss of consciousness, dizziness, or vertigo must be referred to the attending physician. Blood pressure, pulse, and respirations are to be taken every 20 minutes.

IV. Minor contusions are treated with cold compresses followed in 12 hours by hot packs and liniment. This may be carried out at home. Industrial nurses are reminded that the force of a contusion may be transmitted, causing injury at a point some distance from the place of contact. Examples: An employee may fall on his hand and sustain a fracture of the head of the radius at the elbow joint. An employee may fall and land on his feet and sustain a compression fracture of a body of a vertebra.

V. Physiotherapy — infra-red or short-way diathermy — must be ordered by the attending physician.

D. *Strains:*

Classified as industrial or occupational—involves muscles or ligaments or both. Occupational strains may result in the following conditions:

I. Epicondylitis — recognized by "spot" tenderness over the epicondyle of the humerus.

II. Tenosynovitis — recognized by swelling and crepitations over tendons involved, usually extensors of the forearm. Treatment: Immobilization of tendons of muscles affected.

III. Tendon ganglion — recognized as a small, circumscribed mass over a tendon. Ganglia may be compound (multiple). Ganglia arise either from tendon sheath or joint capsule. Refer these cases to the attending physician for treatment. Treatment: Pressure bandage or traumatic rupture.

IV. Trigger fingers—this condition is very easily recognized. It occurs most commonly in the thumb, but can occur in any finger of the hand. Upon flexion of the distal phalanx, it catches in a position of extreme flexion and the patient is unable to extend the phalanx. Occasionally, the patient, by exerting considerable pressure on the extensor tendon, is able to "snap" the distal phalanx into normal position. Etiology: From excessive use, a state of chronic inflammation and edema is set up in the tendon sheath, resulting after a period, in a thickening of the tendon sheath. This fibrosis contracts, forming a ring or band around the tendon. The location of this ring is usually at the metacarpophalangeal joint of the flexor surface.

V. *"Back" Injuries:*

Obtain a careful history of accident. Mild back strains can be occupational in origin. In these cases, the usual complaint is that of low back pain. On all cases, ask these questions: (1) Have you ever had any previous back pain? (2) Is the back pain aggravated by weather changes? (3) As a child, did you have "growing pains?"

Record, on the Accident Report Card, any replies in the affirmative. Many cases of low back pain are non-occupational, and it is important to identify these. Carious and abscessed teeth, infected tonsils, sinusitis, and prostatic or pelvic pathology may cause back pain due to toxins absorbed from these foci or infection After this routine procedure has been carried out, refer case to the attending physician.

VI. *Occupational Wrist Strain and Shoulder Girdle Fatigue:*

This is a comparatively new group of cases. It usually occurs in employees who are doing drilling or riveting. Vibratory machines apparently induce muscle spasm which becomes chronic in nature. This condition is more prone to occur in new employees unaccustomed to industrial work, and particularly in the female worker. There is no swelling of the wrist or arm. Occasionally, there may be profuse perspiration present on the affected hand or arm. These cases usually require three months for recovery. Recovery occurs with "conditioning" of the muscles, and is probably related to complicated muscle metabolism.

TREATMENT: (1) Reassure employee that no permanent disability will occur; that recovery is slow, usually three months. (2) Supportive bandages may be used in cases of wrist pain. (3) Mechanical massage is recommended. (4) Case will be referred to the attending physician, but routine treatment may be started.

VII. *Industrial Strains:*

Hernia frequently results from lifting. It is usually accompanied immediately by burning pain in the groin and the employee will usually refer to a "lump." All cases of suspected herniae must be examined by the attending physician. Herniae may also be occupational in origin. The history obtained in these cases is usually that of an employee doing heavy work over a period of at least one year. Pre-employment examination records are valuable in these cases.

Burns

BURNS may be classified as thermal, mechanical or chemical. Burns are described according to depth, known as degree, and according to the area of the body surface involved. There are six degrees of burns—they are:

1st Degree—reddening of the skin.

2nd Degree—reddening of the skin with blistering.

3rd Degree—the whole thickness of the skin has been burned through. These burns may be identified by the base of the burn and are usually accompanied by 1st and 2nd degree burns. The first three degrees of burns are the most important clinically, and the nurses will not be required to describe burns of greater depth.

4th Degree—burns involving the whole thickness of the skin and subcutaneous tissues.

5th Degree—burns extending down to and involving muscle tissue.

6th Degree—burns involving subcutaneous tissue, muscle tissue and bone. There is marked charring in these cases.

Estimation of the extent of body surface involved by the burn has been simplified by the use of Berkow's method. As life is always endangered by cutaneous burns of 25% or more of the body surface, a graph of Berkow's percentages is reproduced.

The greater the cutaneous area of the body involved, the more profound is the shock. Cases where more than 10% of the body is involved, and the burns are 2nd degree or deeper, must be hospitalized.

TREATMENT INSTRUCTIONS

A. Nurses will wear a mask to treat or redress any burn.

B. It is extremely important to carry out strict aseptic treatment. Dressings will be removed with instruments.

Local Dressings—for 1st and 2nd Degree burns:

I. After the nurse has donned a mask, the burned area will be swabbed with normal saline packs.

II. Ointment: (a) for facial burns, bio-dyne ointment will be used, provided no infection is present. If infection occurs at any time, bio-dyne ointment will be discontinued. (b) For other than facial burns, unguentine or butesin picrate ointment will be applied for 48 hours or two redressings. After this interval, change to A & D ointment. (c) Using fluffed gauze pads, a pressure bandage will be applied to all areas where practical. (d) Advise use of oral salt tablets—four to six daily.

III. Extensive 2nd degree and all 3rd degree burns must be seen by the attending physician.

Eye Injuries

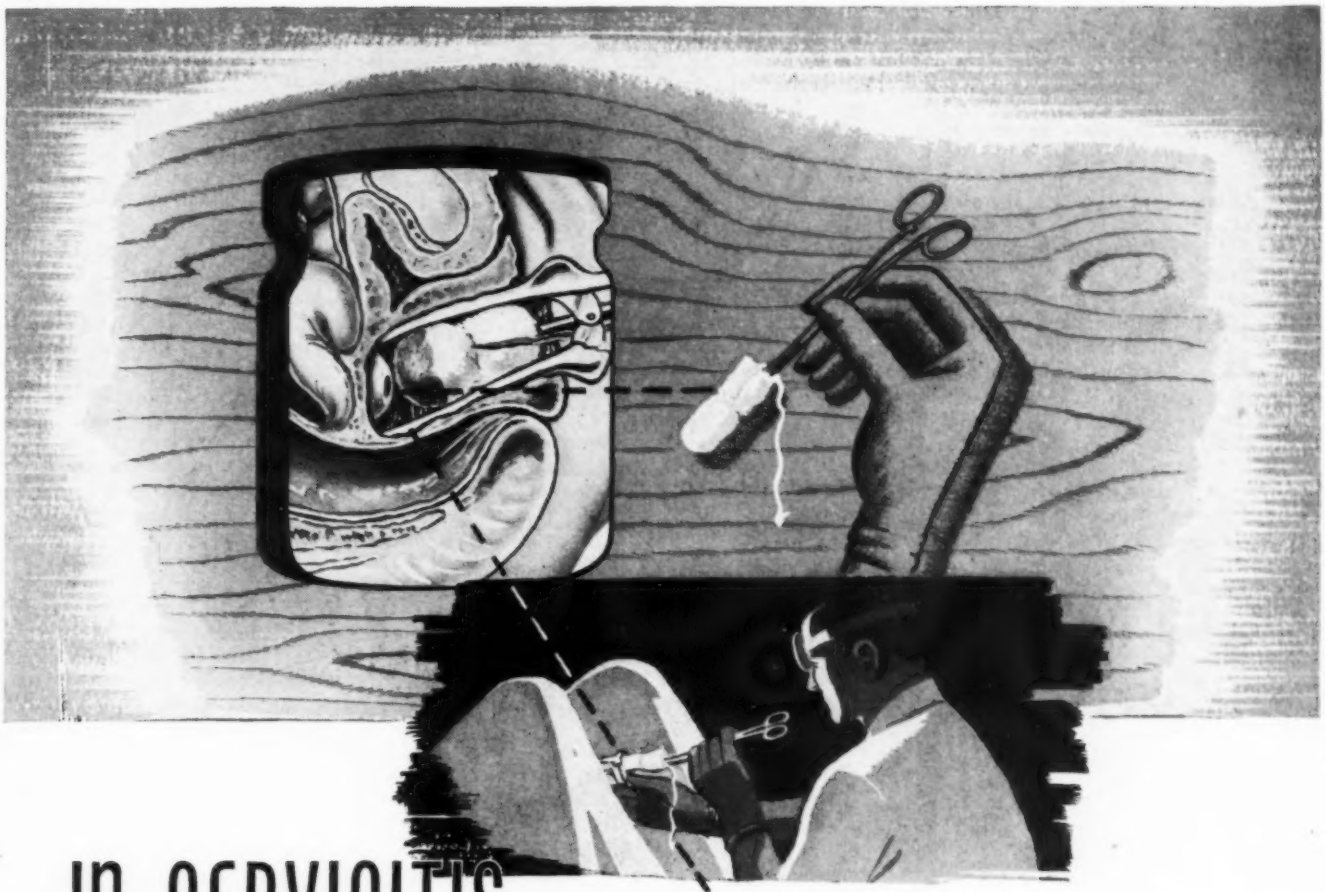
GENERAL Instructions:

I. The nurse in charge of eye injuries will wash her hands with soap and water, followed by alcohol before attending each case.

II. The location of the F.B. will be carefully recorded on the Accident Report Card. Foreign bodies are localized on the cornea according to the clock, and as central or marginal. (Example: "F.B.—7 o'clock, marginal, right cornea.") (Example: "Tr.—F.B. removed; no pigmentation.")

III. The attending physician refers eye cases to the consulting oculist.

IV. Visual acuity must be checked and recorded by the attending physician one week after treatment terminates on all cases not referred to the consulting oculist.



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1. Meaker, S. R., Gonorrhea, J.A.M.A., 87:1377(1926)
2. Kleine, H. L., Cervicitis, J. Mo. State. M.A., April 1939.

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V. If the eye nurse is unable to find a F.B. in any case where there is a history of F.B., the case must be referred to the attending physician.

VI. Whenever the dropper touches the patient's eye or skin, it must be sterilized before using again.

TREATMENT INSTRUCTIONS:

Foreign Bodies, Including Dust Particles:

I. Instill two to three drops of ½% solution of pontocaine hydrochloride into the injured eye. The solution is dropped on the conjunctiva of the lower eyelid. Wait three minutes. An alternative local anaesthetic solution of 2% butyn sulfate may be used where pontocaine is not effective.

II. Using a cotton swab stick, moistened with a solution of sterile S.S.B.A., an attempt may be made to remove the F.B. *The nurse may not use an eye spud at any time or for any purpose on any case.*

III. After the F.B. has been removed, butyn sulfate 2% metaphen, 1:3000 ointment will be placed on the conjunctival surface of the lower lid. This treatment is repeated every four hours for two days. Sulfathiazole 5% ointment may be used, but in a few cases acts as an allergen. Refer all cases where F.B. is embedded or is not easily removed by a moistened swab, to the attention of the attending physician.

Corneal Abrasions and Lacerations:

I. Instill two to three drops of ½% pontocaine hydrochloride solution directed above.

II. Instill two drops of 2% fluorescine solution into the injured eye according to the technique previously described.

III. If a corneal laceration is indicated by the stain, the case must be seen by the attending physician.

IV. Where there is the slightest doubt of a F.B. being embedded in the anterior or posterior chamber of the eye, a physician must see the case.

V. Cases of corneal abrasion or laceration without a F.B. will be dressed as follows: (a) 10% neo-silvol —two drops. (b) Butyn sulfate 2%, metaphen 1:3000 ophthalmic ointment every four hours. (c) Eye pad. (N.B. Holocaine hydrochloride 2% ointment may be used in place of (b) if pain is not relieved.)

Conjunctivitis:

Inflammation of the conjunctiva can be produced by irritating substances, e.g., oils. Conjunctivitis may be due to an allergic reaction. These cases should be carefully looked for and are occupational, if the exposure to the allergen occurs in the plant. Suspected cases of allergic conjunctivitis should be referred to the attending physician.

TREATMENT INSTRUCTIONS:

A. *Due to irritation:*

I. Wash affected eye with S.S.B.A. solution. Use copiously.

II. Instill two drops of ½% pontocaine solution into affected eye in manner previously described.

III. Place optochin hydrochloride 1% ointment on the conjunctiva of the lower lid. Have patient close lids and gently massage. This treatment is repeated daily until condition clears. Sterile Castor Oil may be used in mild cases.

B. *Due to infection:* Divided into two groups:

I. Patients who give a history of having dust in their eye while working.

II. Patients who give no occupational history.

TREATMENT INSTRUCTIONS:

I. (a) Instill two to three drops of 10% neo-silvol or 10% argyrol solution into both eyes. (b) Instill two drops of ½% solution of pontocaine in the manner described, followed by 1% optochin ointment. (c) This treatment is repeated every four hours.

II. Non-occupational conjunctivitis due to infection: Same as above, but refer to oculist of patient's choice for subsequent treatment. Explain to patient that this treatment is his responsibility. Special instructions have been issued on recognition and procedure on cases of epidemic keratoconjunctivitis.

Flash Burns

KERATITIS: Exposure to welding torch usually results in six to 12 hours of severe pain in the eyes. Any employee giving a history of exposure to this hazard will be seen by the attending physician who will supply the patient with a tube of ophthalmic atropine sulfate 1% ointment with instructions for use. *Ophthalmic solutions which may be used by nurses according to standing orders are* (1) S.S.B.A. (2) Fluorescine—2%. (3) Pontocaine hydrochloride—½%. (4) 10% Neo-silvol. (5) 10% Argyrol. (6) Optochin hydrochloride—2%. (7) Sterile parrol. (8) Sterile castor oil. (9) Butyn sulfate—2%.

Ophthalmic solutions which cannot be used by nurses unless ordered by the attending physician: (1) Pilocarpine. (2) Adrenaline chloride—1:1000. (N.B. May not be repeated unless by order of the attending physician.)

Ophthalmic ointments which may be used by nurses according to standing orders are (1) Boric acid—10%. (2) White's opthmol (Vit. A & D). (3) Butyn sulfate, 2% metaphen—1:3000. (4) Optochin hydrochloride—1%. (5) Sulfathiazole—5%.

Ophthalmic ointments which may not be used or repeated unless ordered by the attending physician: (1) Holocaine hydrochloride—2%. (2) Atropine sulfate—1%. (3) Mercuric oxide (yellow)—1%. (4) Zinc sulfate—½%. (5) Eserine ointment. (6) Holocaine hydrochloride 1% and epinephrine—1:50,000.

Dermatitis

OCCUPATIONAL dermatitis represents at least 65% of all compensable occupational diseases. Occupational dermatitis is an allergic skin reaction due to contact with a sensitizing substance. The skin eruption appears first at the point of contact, but may appear later on other parts of the body. This is known as an "id" reaction and is caused by the allergen being carried in the blood stream to other areas of the body. It is essential to understand the basic difference between sensitivity and primary irritation. Primary irritation will be caused by gasoline, oils, essential oils, acids, and alkalis. This type of reaction occurs in all people and may be regarded as a normal skin response. Allergy is an entirely different physiological phenomena, and only occurs in certain individuals. Certain substances have a high index of sensitivity. Chrome compounds are a classic example. In the aircraft industry, 65% of all occupational dermatoses are due to chrome compounds. Zinc chromate and chrome compounds form the base of the paint used to spray the aluminum alloys used in the construction of ships. Accordingly, employees in the paint departments, in departments 19 and 17 where drilling and riveting are done on painted aluminum, or in any department where contact is made with painted aluminum, are exposed to chrome dermatitis. Any operation in any department where painted metal particles fall on the hands or arms, may result in dermatitis in a chrome allergic worker. Difficulty in recognition of occupational dermatitis arises when infection becomes super-imposed. The infection may be fungus or bacterial. Scrapings will be taken on those cases where the type of infection is not known. The medical technician will examine the smear and report the findings.

Standing Orders

ALL CASES of dermatitis must be seen by the attending physician. Cases will be classified as follows:

I. Chrome dermatitis—65%.

II. Chrome dermatitis with infection—10%.

III. Oil folliculitis—20%.

IV. Occupational dermatitis — this will include a small group of workers who are allergic to: (a) ditto (office), (b) poly chlorinated resins (binder for carborundum emery wheels used for grinding).

GROUP I: Protective creams are of very little value. Protective clothing is of value in drilling operations, and sleeves will be supplied to the worker. The employee will be instructed to discontinue using soap and water to wash his hands and arms. A detergent, Acidolate, will be supplied to the worker for this purpose. It is necessary, if dermatitis persists, to transfer to another job where contact will be eliminated.

GROUP II: Wet dressings of boric acid or Burow's solution will be applied and the worker taken away from his occupation (lost time case) until the infection subsides.

TREATMENT: The care of cases complicated by fungus infection will

37% *Stronger for* Coughs

Exempt Narcotic

Each fluid ounce contains (1) one grain Codeine Alkaloid

MADE with the Codeine *Alkaloid* one grain to the ounce. It is readily verified that 1 grain of Codeine *Alkaloid* is equal in strength to 1.37 grains of the commonly used Codeine Phosphate.

A palatable, cherry-colored syrup, well tolerated by children. Contains with the codeine; ammonium chloride, ipecac, glycerine, sugar, water, flavoring and senna. An exempt narcotic. Costs little or no more than ordinary codeine syrups. Druggists stock for prescription use. Prescribed since 1898.

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If you will try it—just once—in the coughs of pertussis, bronchitis or asthma —you will continue to prescribe it and we shall be grateful.

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No samples please. Government Request

remain under the supervision of the attending physician.

GROUP III: Oil folliculitis has been dealt with under dressing of wounds. Infection does not come from the oil, but from the skin surface. It is pointed out again that this condition is one of primary irritation and accordingly, protective cream is quite valuable as a prophylactic agent. The protective cream used is Ply No. 9 which our experience has proved satisfactory. Treatment is ultra-violet irradiation.

GROUP IV: All other cases of occupational dermatitis or unrecognized skin conditions will be referred to the attending physician for diagnosis and treatment instructions. Non-occupational skin conditions commonly confused with occupational contact dermatitis are:

I. Lichen planus.
II. Pityriasis rosea.
III. Urticaria—ingestion sensitivity from foods—common offending foods are eggs, wheat and milk.
IV. Erythema multiforme.
V. Acne.
IV. Dermatoses due to sensitivity to substances not relative to industrial environment, e.g., face powder, soaps, clothes, plants, etc.

PROCEDURE AND MEDICAL POLICY FOR ILLNESS:

I. The general policy of the medical department will be to render first aid to illness and refer the employee to his personal physician for subsequent treatment.

II. All employees losing time due to illness or an outside accident are required to present a licensed physician's certificate to the medical department on return to work. Employees not complying with this regulation will be regarded as absent due to other reasons than medical.

III. All cases of illness may be returned to work, with a physician's certificate and a normal temperature, by the nurse, except cases where absence has been due to: (A) Communicable diseases. (B) Major operations. (C) Illness absence of 30 days or more. These cases must be returned to work by the attending physician.

IV. All medical emergencies will be seen by the attending physician. If a physician is not available, contact will be made with the employee's physician and his instructions carried out. Transportation of these cases home or to a hospital, must be approved by the attending physician, but in his absence, may be approved by the head nurse of the shift. A record of these cases and the following information: name of patient; date; hour; diagnosis and medical or compensation. Noted according to shift in a book provided for this purpose.

V. On employees who are sent to the medical department because of suspected alcoholism, the attending physician will examine. The nurse will record the physician's findings on the Accident Report Card. The term "drunk" must never be used. "Under the influence of alcohol—sent home" will be written on the employee's card. Cases where alcoholism occurs during the shift will be referred to the company police chief.

VI. All cases of pregnancy, threatened abortion, or excessive menstruation, will be referred to the attending physician.

VII. All cases who are suspected of being psychopathic or sub-normal, are referred to the attending physician. If the attending physician is not available and the case is uncontrollable, the employee's family must be contacted and permission requested for 30-day hospital observation. The City hospital will not accept these cases unless authorized by closest of kin available. Police escort, if necessary, will be provided by company guards.

VIII. No medications can be dispensed by the nurse unless full directions are given, and unless ordered by the attending physician.

IX. Nurses are requested not to use department telephones for personal calls, and to avoid having personal calls.

STANDING ORDERS FOR ILLNESS.

I. *Headaches:*

A. For headache, without a fever and no history of injury, the nurse may give two cetaphen tablets, or other acetyl salicylic compound.

B. For headache, accompanied with fever, dizziness, vomiting, rigidity of the neck or vertigo, the nurse will refer the case to the attending industrial physician.

II. *Colds:*

A. If employee has a fever of 100° F or more, the nurse will issue a gate pass and record on the Absentee Control Sheet. The employee will be advised by the nurse to seek medical care promptly.

B. If cold appears minor in nature, the nurse may: (1) Instill two drops of ephedrine sulfathiazol solution into each nostril. (2) Instill two drops of 10% neo-silvol into each eye. (3) Give the patient six cetaphen tablets.

C. If the employee's card shows frequency of head colds, he may be referred to the attending physician for examination.

III. *Toothache:*

The nurse may examine teeth. If a cavity is noted, she may pack it with cotton dipped in oil of cloves, and refer the employee to his dentist.

IV. *Sore Throat:*

Employees with a normal temperature may be given a hot saline gargle. Six tablets of cetaphen may be given. Sore throat associated with a fever of 100° F—the employee is issued a gate pass and referred to his personal physician. (N.B. The use of sulfonamides is advocated in cases of streptococcus throat infections. They are helpful in preventing exacerbations of rheumatic fever.)

V. *Upper Respiratory and Respiratory Infections:*

Employees with acute respiratory infections with fever, cough, sneezing, or nasal discharge should be sent home for segregation, bed rest, and medical attention.

VI. *Cases of Nausea and Abdominal Discomfort:*

These should be examined by the attending physician, or, if he is not available, referred to employee's personal physician for diagnosis. Cathartics or laxatives must never be dispensed by the medical department. Morning-after illness may be given a Bromo-Seltzer.

VII. *Dysmenorrhea:*

In mild cases, the patient may be given an analgesic, menodyne tablets, II, or Hayden's viburnum, one tablespoonful. In severe cases, the patient is put to bed at the plant hospital, heat applied to the lower abdomen, and menodyne given. If no relief is obtained in 30 minutes, the case is sent home for further treatment.

VIII. *Pregnancy:*

It is the policy of the medical department that cases of pregnancy are granted a leave of absence at the end of the sixth month. They are permitted to return to work six weeks post-partum for clerical employees, eight weeks post-partum for factory workers. All cases returning to work must have the approval of their attending physician in the form of a certificate.

IX. *Menopausal Disturbances:*

Employees showing marked menopausal disturbances are referred to the attending industrial physician for advice. Industrial nurses are instructed to assure employees who are menstruating that this is a normal physiological process and that working is not harmful to them at this time. It is not necessary for employees to lose time during normal menstruation. Frequently industrial nurses are asked how long an employee will be away from work if surgical operations are performed. The following is an outline.

A. Tonsillectomy—one week or less.

B. Appendectomy — without drainage—three weeks for clerical help, four weeks for factory workers.

C. Herniorraphy — six to eight weeks.

D. Cholescystectomy (gall bladder) —eight weeks—some cases will require longer.

E. Gastric resections or gastroenterostomy—eight weeks—some cases will require longer.

F. Breast amputations—No definite period can be stated, but usually three months.

G. Fractures—Dependent upon the age of the employee and the severity.

Fingers—three weeks or less.
Colles—four to six weeks.
Upper arm—six to eight weeks.
Pott's—six to eight weeks.
Toes—two weeks or less.
Os calcis—six weeks to six months.
Tibia—three months.
Pelvis—three to six months.
Vertebrae—two to six months.

RELIEF OF PAIN in Dysmenorrhoea

At every menstrual period some women suffer and they seek your advice for relief. Often even after exhaustive investigation, no organic basis can be found for this dysmenorrhoea, yet month after month it recurs. For such menstrual distress, 'Tabloid' 'Empirin' Compound provides dependable, safe relief.

The synergistic action of the acetylsalicylic acid and the acetophenitidin also eases the headache which often accompanies menstruation, while the caffeine combats depression.

Acetophenetidin . . .	gr. 2½ (0.162 gm.)
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Tendon repair—three to four weeks—frequently can be placed without loss of time.

Bursae—one to three weeks—frequently no loss of time.

STANDING orders and medical department policy cannot be constructed to meet every situation. This manual has been prepared to standardize the nursing service rendered injured employees and to increase your interest in the cases you see by broadening your knowledge of industrial conditions.

It is sincerely hoped that as we go along our standard of industrial nursing will steadily improve. It will be my endeavor to stimulate your interest continually in industrial nursing. Examination based on this manual will be the basis of determining your value as an industrial nurse.

By thoroughly understanding the basic objectives of industrial nursing, progress can be made toward a modern industrial health program. Both employees and management will appreciate the broad benefits derived from intelligent medical and nursing services in industry.

The Training of the Industrial Nurse

A. J. AMOR and CLARE SYKES,
London

WAR has brought an extension and speeding up of technical and professional education in this country which has gone largely unobserved because there has been no time for comprehensive surveys. Probably it has been excelled only in the Russian experiment which set itself to produce from an illiterate and peasant populace a large proportion of industrial workers, mechanics, skilled engineers, teachers, doctors and administrators, and to do so within a strict time limit. While our relatively long industrial history and system of state education spared us the stark immensity of Russia's problem, total mobilization of man-and-woman-power to the urgent needs of war required of us something of the same swift transition to new occupations; occupations, moreover, which demanded an exact technical competency. A man employed as a casual labourer in 1939 controls a nitrating plant in 1942. Thousands of former shop girls and domestic servants are now not merely doing repetitive machine jobs in aircraft, munition and engineering factories, but also highly skilled precision work. Thousands of clerks, salesmen and insurance agents have become R.A.F. pilots. Many professional men and women have been required for new specializations, or specializations presenting new problems in the stresses of modern war, as for naval, aviation and industrial medicine. Here specialized post-graduate courses must be added to the basic professional training. A study of the new environment and its problems is required and the development of skill in adapting professional knowledge to a new field of application.

Of necessity, leisurely and carefully graduated apprenticeship has been swept away. All has been done by means of the "Short Training Course," on which "Urgent" has been stamped. In the industrial field the "Government Training Centre," originally a small-scale and somewhat inconspicuous attempt to deal with one aspect of an unemployment problem, has since 1939 been inconspicuous for the new reason that practically every large factory, and particularly those in the aircraft and munition industries, has its own "Training Centre," or "Training Shop." Syllabus, methods and practice have been governed by two considerations and two only—adequate technical competency in the shortest possible time. The short war-time course is intensely practical; "you need to know this because you have to use it." General principles and theory are cut to the essential minimum. Those short courses, designed for professional groups whose vocational education under normal conditions would include a good deal of "background study," have perhaps suffered most by the necessary effort to pass out the greatest number in the shortest time. But this bias towards the severely practical, even in the professional sphere, has not been wholly disadvantageous. It has at least compelled us to question our aims and methods and this has been particularly valuable in such a comparatively new specialization as industrial nursing, where, because of the variability of industrial organization, because of the isolation in which the industrial nurse works, particularly in the smaller factories, and the fact that neither her employer nor herself, on her first entry to the factory, can appreciate the exact scope of her duties, clarification has been groping, slow and experimental.

It is first necessary to determine precisely for what we are training the nurse, what will be the scope of her actual duties and responsibilities and the professional and person qualifications these demand. We have then to determine what skill and what theoretical knowledge are necessary to meet these demands and what type of educational organization, what teaching staff and what practical experience can best provide them. It is equally important that we are clear on these fundamentals, whether we consider war-time "short courses" or the longer post-graduate courses which we may hope to see re-established after the war. A post-graduate training course is designed not only to impart a certain amount of knowledge but has also to give the nurse an orientation to her work and to condition her to a new environment. A factory medical department is not to be considered an annex or a sort of "out-post" of hospital practice; it should be an integral part of factory organization and will achieve its purpose only in so far as it succeeds in becoming so. While the implementation of this policy is primarily the responsibility of the directional head of medical service within the factory, it must be fully understood and appreciated by every member of the medical and nursing team. Hence it follows that while certain aspects of the nurse's industrial training will take place within a hospital as special casualty training with an emphasis on the early stages of rehabilitation, or in ophthalmic treatment, fracture and skin clinic work, yet her main teaching centre and practice ground must be the factory itself.

Duties and Responsibilities

AN experienced industrial medical officer recently stated that she demanded four qualities of her nurses; sound clinical judgment, good technical skill in the works surgery, a knowledge of the special hazards in her factory and of environmental hygiene, and an ability to get on with both workers and management. She added that "if she has these virtues all others shall be added unto her." These criteria probably command general acceptance amongst practising industrial medical officers and nurses and it is noteworthy that these four qualities are not less but more essential in those small factories where a nurse has not the advantage of working under the direction of a full-time medical officer. Perhaps too much has been made of the differences between large and small factories as regards medical department organization and actual nursing duties. Apart from the fact that in the smaller factory the nurse's work, like other executives' work, tends to be less specialized and that in the absence of a full-time doctor she takes more responsibility for organization and administration of the medical department, her actual nursing duties and responsibilities are much the same. (It should be noted that where a nurse undertakes the duties of a welfare supervisor, she should have had special training in welfare supervision and that only the training of industrial nurses as such is discussed here.) On the other hand, minute variations in factory organization make it difficult to draw up any list of duties and responsibilities for industrial nurses which is universally applicable, but that issued to senior sisters in the Ministry of Supply Nursing Service may perhaps be taken as broadly representative of the duties of an industrial nurse, although even within that organization

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Christmas 1944
Confident that every loyal citizen will continue to contribute his best to our country's effort, we approach the coming year with renewed hope in the return of an enduring peace.
To all who have served the nation, at home or abroad, we extend our wishes for a bright Christmas and a New Year filled with happiness.
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minor modifications are necessary to meet slightly varying "set ups."

DUTIES AND RESPONSIBILITIES OF SENIOR SISTERS MINISTRY OF SUPPLY NURSING SERVICE

1. To be responsible to the medical officer for strictly medical and professional matters; to be responsible to the Superintendent for the organization and discipline of nursing services in the factory, the observance of regulations by surgery staff, and for all else pertaining to her duties. She is to be considered head of the nursing service in the factory and all matters concerning the nursing will go through her.

2. To organize surgery routine and ensure that nursing service covers all hours when workers (including maintenance and canteen employees) are working. To arrange such nursing supervision and participation as is necessary for entrants and other examinations and such special clinics (dental, optical, ultra-violet ray, etc.), as may be set up.

3. To be responsible for the training of nursing staff and auxiliaries in sound industrial nursing practice and for the supervision of nursing duties which are to be carried out strictly in accordance with hospital standards of technique. Special attention to be paid to the prevention of sepsis.

4. To undertake treatment of minor injuries, the first treatment of major casualties, and of sickness occurring in the factory and such subsequent treatment as may be ordered by the medical officer.

5. To be responsible for the cleanliness and orderliness of surgery premises.

6. *To be responsible for the safe-keeping of all drugs, medicines and lotions and of all dressings and instruments. To supervise issue of such stores and to keep stock records. To order medical and surgical supplies in accordance with such instructions as are issued from time to time.

7. To ensure that full and accurate records of all surgery attendances are kept and any other medical records which the medical officer may place under her supervision.

8. To acquire knowledge of the nature and hazards of the process in the shops and to arrange regular and systematic visits to the shops by her nurses, having made such arrangements as may be necessary with Production and Labour Departments.

9. To do all in her power to foster and maintain cooperation with labour officers and production managers and good relationships with foremen and forewomen and all supervisory grades of production. To cooperate especially with labour officers on such matters as the placement of workers having any physical handicap, transferences for medical reasons, patients to be sent home on account of injury or ill-health and returning from sick absence, and the care of pregnant women, after discussion with the senior medical officer. To arrange that a trained nurse shall see all workers before they are sent home on account of injury or sickness at such times as the medical officer is not available.

10. To deal confidentially with individual problems of personal hygiene referred to her. To promote the education of the workers individually and collectively in matters of general and personal hygiene and with particular emphasis on such prophylactic measures as their work may render necessary. Her demeanor towards workers at all times to be courteous, friendly and accessible, yet dignified and firm.

The Entrant to Industrial Nursing

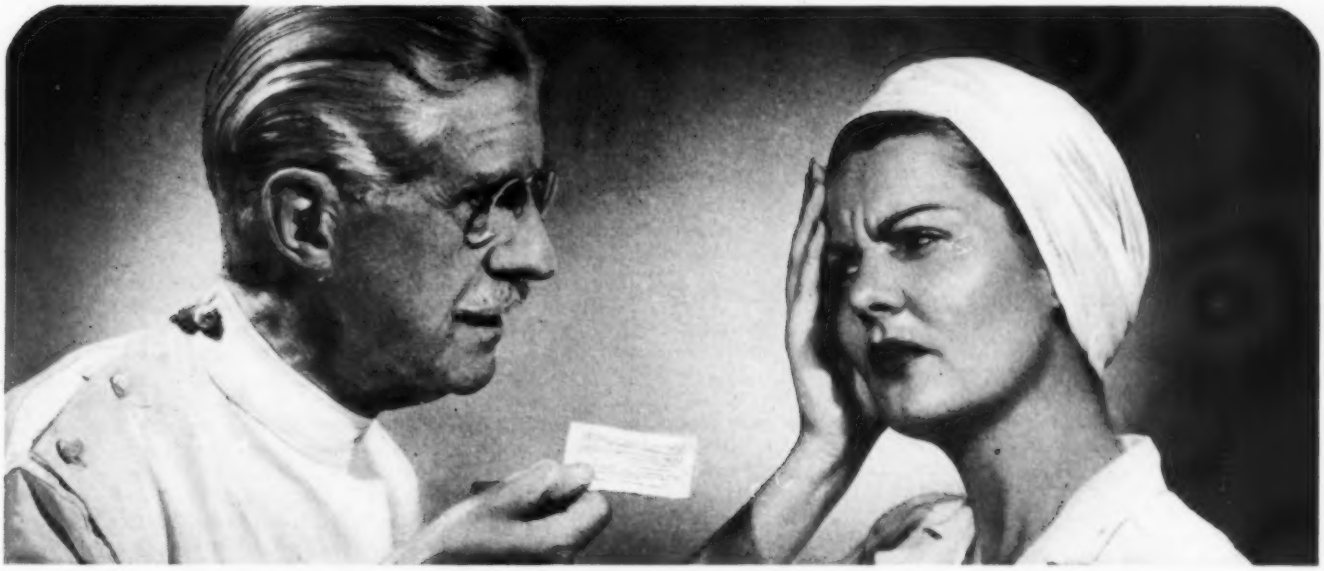
GREAT attention should be paid to the need to acclimatize and condition the nurse to her industrial environment. Those of us who have always lived in close touch with industrial organization or who have long practised in industry perhaps tend to forget what a strange and bewildering new world it is to the nurse straight from hospital and how little her hospital life and organization prepares her for it. The organization of the largest hospital is relatively simple. Its main purpose is the cure and treatment of the sick, which main purpose doctors and nurses directly serve, with their work and attention focussed on the ward and its patients. The other departments and personnel which are subsidiary to the main purpose and indirectly support it, barely impinge on the nurse's consciousness and thus she tends to think the organization even more simple than it actually is. Usually it presents itself to her as two parallel hierarchies, one line running down from honorary to first-year medical student and the other (and the only one which really concerns her) running down from Matron to the last batch of probationers in the Preliminary Training School. But even the rawest probationer, from the time she enters her first ward, is in the centre of the picture. She directly serves the main purpose of the great institution and no menial jobs or snubs from her seniors can disguise it. Even at the stage where she does little more than change the bowls and hold the safety-pins for sister, she is part of the swaying drama that goes on between illness and health, life and death; she knows the tension of the operating theatre, the ambulances coming in at night, the swift preparation of "acutes" under the shaded lights; she may perhaps acquire some faltering insight into the strange pitifulness of human hopes and fears, "the tears in things," and her first experience of human tragedy.

We contrast the industrial organization and the nurse's place in it. On entering industry she passes into a world organized on quite other lines to the world she has known. A world organized for the production of goods, materials and services. A world with a comparatively static population, where the majority are not sick, where prevention is the keynote. "Production" is the main purpose here; the important people are those who directly serve it—managers, shop managers, foremen, chemists, engineers, operatives. She becomes aware of seemingly subsidiary departments—Administration and Wages, Research, Maintenance Services, Personnel and Medical; over all presides "The Board" and its Chairman with one or more Managing Directors. To the uninitiated the whole organization and the functions of its parts seem very complex, and it is encountered in a totally new environment, which new types of people talking a strange production jargon, and the rattle and vibration of strange machines. The nurse does not know quite how or where she fits in, but it seems obvious that she is not the centre of the picture here. She has been taught implicitly to follow the instructions of doctors and seniors and to observe hospital etiquette; she has not been taught the art of co-operation with a varied hierarchy of people doing completely different jobs and probably only discovers that there is such a thing as factory etiquette by an initial series of blunders, some of which may be difficult to live down. In hospital patients live under the direction of doctors and nurses. In industry the nurse discovers that whether workers use the medical department at all depends on how far its staff can establish and maintain confidence in it. She realizes that a persuasive and reasoned approach is required, which again is a new technique to her. In hospital her status was fully established, and while much progress has been made this status is still not fully established in industry. While, broadly speaking, those factors within the factory which directly influence health should come within the sphere of her influence, this is by no means accepted and she must learn to employ "the tactics of infiltration." No elaborate records are demanded of her in hospital nor does her work there tend to be assessed statistically by business men who habitually think in figures and work on concrete facts. She has to learn to present her work, and her results and any request she may wish to make, in such a form. Even technically she may find that she has much to learn, not only of special industrial hazards and precautions, but because her hospital training may have been weak in those types of experience especially valuable in industrial practice. The actual time spent and experienced gained in ophthalmic work and in out-patient and casualty departments during or subsequent to general training is variable and may require strengthening.

Practical Background of Training

PRIMARY training for industrial nurses must therefore provide not only lecture courses and technical demonstrations, but also survey the structure of industry and factory organization, acclimatize the recruit to factory life and conditions, and give her the best orientation possible to her own work in and for the factory community. The orientation of herself and her work must spring from an appreciation of that new philosophy of industry which pays the greatest attention to the health and welfare of those working in the factory. Whilst this philosophy is evolving slowly it had made some progress in the years prior to the war, expressing itself in the adoption of comprehensive personnel policies by the modern technique of personnel management and the establishment of industrial medical departments. As is usual in war this stimulus of production has emphasized the necessity for exercising the greatest care with the limited human forces available. It has been recognized that those industries which have been most successfully integrated and geared for maximum production have been those which have recognized the importance of the health and welfare of their workers. Thus medical and nursing service closely linked and working in fullest collaboration with the personnel department and responsible directly to the most authoritative person within the factory, is a clearly defined and

*Omitted in factories where a dispenser is employed.



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functioning entity within the factory in the sense in which 'production,' 'services' and 'research' are clearly defined entities. If it is essential that this orientation be given to the industrial nurse and given as a fundamental faith, concretely to be worked out and demonstrated in order that she might realize the full significance of her daily work, it is equally essential that it shall be given historically and realistically. Historically, because it is an emergent philosophy, not yet accepted or practised over the whole of industry. She should be helped to appreciate the long road we have travelled from conditions in the early days of the industrial revolution, and the milestones of factory law and legislation on that road. Realistically, because she must know the worst as well as the best of factory conditions to be found in our own day. She must appreciate both how far beyond the legal minimum the best have gone and how great the effort required to keep the worst to that minimum.

These considerations lead to the conviction that the major education of the nurse must take place within the factory and that those who are to teach must be those who have full experience of the practical side of industry. There may well be a place for more advanced and academic study, such as is envisaged in the Industrial Nursing Section of Part B of the London University's Diploma in Nursing, but the basic industrial course should be practical, and based and grounded in the factory.

Syllabus of Training

THE presentation and grouping of subjects within the syllabus is important. The syllabus should not be a hotchpotch of subjects whose relation to each other and to factory organization and functions is undefined; these subjects should rather be so grouped and presented as to integrate them with actual duties and responsibilities and to give the requisite orientation to factory conditions, and they must be woven into a comprehensible pattern. A suggested outline for a primary and basic course in industrial nursing is given below. It is considered that even under wartime conditions such a course could not be completed, together with the requisite demonstrations and practical work entailed, in less than three months, and under peace-time conditions should preferably be spread over six months.

Need for Experienced Teachers

IT HAS been said, and cannot be too strongly stressed, that the major education of the factory nurse must take place within the factory (including, of course, the shipyard, the mine, the dock and harbour authority, the department store), and that those who are to teach must be those who have experienced to the full the practical side of industry. Lecture rooms there must be and visiting external lecturers who are authorities in their special subjects, but these must play a part subordinate to the first-hand study and practice within the factory. The educational committee, or whatever be the body which is responsible for the organization and administration of the training, must be composed, not of the external authorities, whether of the educational or medical professions, but of practising industrial medical

Outline Syllabus for the Basic Training of Industrial Nurses

I. THE STRUCTURE OF INDUSTRY. MACHINERY OF INDUSTRIAL RELATIONS. THE POSITION OF MEDICAL AND NURSING SERVICES WITHIN THE FACTORY ORGANIZATION.

(*a*) The purpose of industry: the production of goods, materials and services. Evolution of industrial organization. Company structure. Factory organization and administration, including executive control and departmental organization.

(*b*) The machinery of industrial relations:

(i) Internal: Works Councils and Production Committees. Functioning of Whitley Council in the factory.

(ii) External: Trade Unions, organization and functions. Trade Boards and National Whitley Council Organization. Employers' Federation.

(*c*) The place of the Medical Department in the factory: chain of control.

(*d*) The work of the Personnel Department and the integration of Medical and Personal Departments. Integration with other factory departments.

II. THE WORKER

(*a*) *Health Maintenance*

Non-scheduled diseases common amongst industrial workers: rheumatic diseases, chronic bronchitis and other respiratory affections, gastro-intestinal complaints, hernia, anaemia, communicable diseases. Interaction of the personal, social and environmental factors involved in maintaining health. The preventive and constructive side of the nurse's work.

(*b*) *Industrial Psychology*

Physical and mental aptitudes, intelligence and dexterity tests. Temperaments with special reference to the nervous. The effects of monotony, fatigue and boredom. Manual work. Weight-lifting and carrying. The place in industry of the mentally abnormal.

(*c*) *Methods of Health Education*

The teaching functions of the industrial nurse. Individual and group instruction. Methods of approach to different groups and ages. Practical teaching: preparation of talks and illustrative material; presentation to the group. Interviews and talks with new entrants. Courses of health and hygiene talks as a part of training schemes in industry.

III. ORGANIZATION AND WORK OF A FACTORY MEDICAL DEPARTMENT

Organization

(*a*) Design and equipment of Medical Departments and surgeries in large and small factories. Medical and surgical stocks. Staffing.

(*b*) Objects and methods of compiling systematic records of sickness, accidents, occupational diseases, and monthly medical reports. Sickness rates and their interpretation. Charts and graphic methods of illustrating facts.

(*c*) Liaison with outside medical services, hospitals, public health and social services.

(*d*) Personal and professional qualifications required in industrial nursing. Industrial nursing ethics. Standing Orders. Staff supervision and training. The development of industrial medical services and associated research bodies in this country. The approach to the worker. Factory etiquette.

Functions

(*a*) Examination of new entrants: the nurse's duties working under the direction of a medical officer. Inspection and history taking; the nurse's duties if a medical officer is not available. Assessment of physical requirements for process in association with psychological requirements (see above). 'Follow-up.' Health supervision, including personal hygiene and defestation. Health supervision of special groups: (i) adolescents, (ii) workers engaged on strenuous and hazardous processes, (iii) pregnant women, (iv) elderly workers.

(*b*) Treatment of minor ailments and injuries in the factory surgery and the prevention of sepsis. Casualty surgery of major and minor injuries, including fractures and crush injuries. The first care of medical, surgical and gynaecological emergencies. Examination and treatment of eye injuries.

(*c*) Rescue work and resuscitation. Treatment of gassing cases. Heat stroke. Rehabilitation of the injured worker.

(*d*) Accident prevention—liaison with Safety Officers. Medical representation on Works Safety Committees. Accidents in relation to personal qualities and to environmental conditions.

(*e*) Auxiliary Medical Services: ophthalmic, dental and chiropody clinics. Ultra-violet light clinics.

IV. THE WORKING ENVIRONMENT

(*a*) *Physical.* Lay-out of a factory: 'good housekeeping.' Heating, lighting and ventilation. Humidity. Pressure changes. Glare. Noise and vibration. X-rays.

(*b*) *Chemical.* (Treatment here includes the diseases and medical conditions these substances may cause, paths of entry of poisons, and methods of prevention and control.) Solids. Liquids. Gases. Vapours. Fumes. Smokes. Dusts.

Inorganic. Lead, mercury, arsenic, nickel, manganese, chromium, phosphorus, nitrous fumes silica, asbestos.

Organic. Benzene and its derivatives, nitro derivatives, amida, nitrophenol, dope, tetrachlorethene, carbon disulphide, boxwood, tarpitch, etc., mineral oil, soot, dioxan, naphthalenes, CHBs, tri-*o*-phosphate, tri-*p*-phosphate, cotton.

(*c*) *Biological.* Anthrax. Glanders. Ankylostomiasis. Weil's disease.

(*d*) *Psychological.* The working group. The study of the individual and the group in relation to the working environment. Mental atmosphere, social environment and discipline, people in authority. The importance of foremen and forewomen as the rank of supervision in closest and most continuous contact with workers. Anxiety and danger.

Organization and control of working conditions; advisory functions of the Medical Department. Work spells and rest pauses. Hours of work and shift systems. Night work. Systems of wage payment. Wages and the standard of living. Arrangements for transfers and promotion. Welfare arrangements and supervision; provision of amenities including canteens. Effect of working conditions upon labour turnover, absenteeism, accidents, output, health, industrial fatigue and unrest.

(*e*) *Study of the Processes of Production.* The production "flow sheet" from raw material to finished product with the various chemical metallurgical or manufacturing processes carried out at each stage. Job analysis. Time and motion study. How to tour a factory.

V. THE LAW

(*a*) The minimum requirements for health, safety and welfare. The 1937 Factories Act. War-time amendments. Special orders and regulations subsequently made.

(*b*) The specific control of a chemical process and the medical observation of the worker. Chemical Works Regulations.

(*c*) Financial provision for the diseased and injured workman. Workmen's Compensation, and Silicosis and Asbestosis Acts.

VI. THE SOCIAL BACKGROUND

Home and social environment. Evolution of the traditional institutions of industrial workers. Recreations. The importance of appreciating the worker as a citizen with his own pattern of social life outside the factory. Social Insurance. Guide to statutory and voluntary social services; a need for a personal interpretation of these to those whom they are designed to benefit.

"HEY! WATCH IT BUD!"

"GAS," HEARTBURN, UPSET STOMACH "NERVOUS INDIGESTION"—such gastric upsets sabotage even the best worker.

PROMPT RELIEF in these cases of stomach distress due to excess gastric acid is certainly what's needed!

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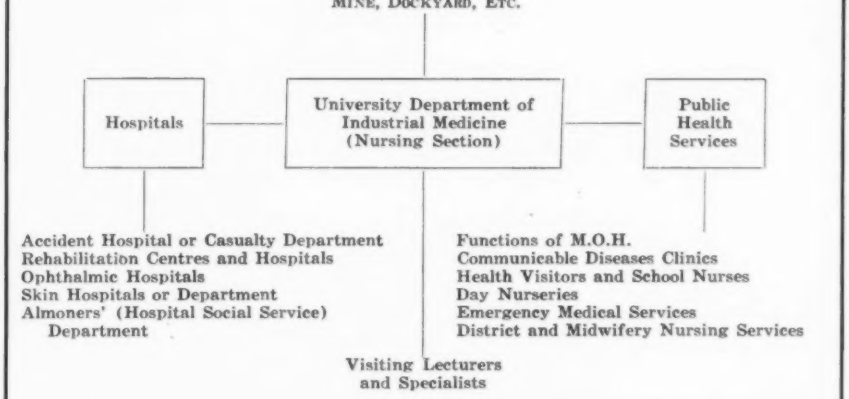
officers and industrial nurses, who together shall have had a wide experience in varied industries and types of firms. It is recognized that this is not an easy stipulation to fulfil; people of the requisite calibre and experience are few; and as they combine their practical duties with leadership within their specialty, their time may seem to be fully occupied. But it is believed that those who have done most to establish standards of practice in a new field are those who are most deeply concerned with the education of its future practitioners, and that if such training courses were established in industrial areas it would be possible to gain the co-operation and service within the area of both industrial medical officers and nurses and of industrialists themselves, who alone can give the 'laboratory facilities' required in the factories. To place the broad direction of the training in such hands ensures that the practical requirements and problems of a works medical department shall be kept well to the fore and practice and theory closely correlated, that so far as possible a uniformly good standard of practical instruction and demonstration is given and sound proportion maintained in combining different parts of the syllabus.

Probably we must look to the further development of departments of industrial medicine under University medical faculties situated in industrial areas and largely staffed by industrial medical officers and nurses to meet the need.

It is interesting to note that the Interim Report of the Social and Preventive Medicine Committee of the Royal College of Physicians (published October, 1943, and reviewed in *The Lancet* of October 30, 1943) recommends the establishment of Departments of Social and Preventive Medicine in every teaching school to organize a modernized course, covering the three clinical years, including social medicine in the strict sense and industrial medicine, and that the Royal College of Physicians take an active part in the organization of the teaching of this great subject to students, nurses, and medical social workers. It is desirable that industrial sister tutors be appointed and that an individual tutorial system be established to give the utmost flexibility in meeting the needs of individual students. This is the more necessary as basic professional experience during and subsequent to general training is variable and it often happens that an industrial nurse has had but little experience in those branches of nursing most valuable in industrial practice; one recruit may have acted as staff nurse or even sister in an ophthalmic hospital and another have done very little eye work. Again successful adaptation to a new sphere depends upon many personal factors and helped by the reports which she will receive from the factories where the student does her practical work, as well as by her own observation and the student's expression of her difficulties, she is in a position to give valuable guidance. The professional and personal qualifications of tutorial staff are of supreme importance. They should have educational qualifications, sound and wide experience as practising industrial nurses, and those mellowed qualities of wisdom and human understanding essential to all who seek not only to teach but also to guide and inspire students on the threshold of their careers.

Chart of Organization of Training



Personal Qualifications

SINCE by no means all are fitted for this specialty and bearing in mind the important consideration that it is to those specially trained to whom industry will naturally look to fill the senior posts in large organizations and in group medical and nursing services for small factories, and to take sole responsibility in the medium firm, pre-entry selection of students is essential. Attempts to base selection on psychological tests and technique fail in nursing as no tests have yet been devised to measure all-important traits of character and temperament. We must therefore fall back on the selection interview by experienced officers, together with records of general and professional education and, preferably, the added safeguard of at least six months experience in industry as junior sister in a large firm. The following standards are suggested as desirable:

Age of entry: preferably not under 25 years.

General education: matriculation or comparable standard preferably with science.

Professional qualifications and experience: S.R.N., S.C.M. Part I.

Special experience in casualty, ophthalmic, outpatient and dermatological nursing useful.

To have held supervisory posts as Staff Nurse or Sister, or to have had experience of public health nursing subsequent to training, is an asset.

Outside nursing experience in social work or a sound business training may be counted useful in equipping the industrial nurse.

In professional reports and references, technique, sympathetic understanding of patients, supervisory and organizing capacity are points to note.

Personal qualifications: A pleasant, dignified and acceptable personality. Interest in people. A sense of humour (if this can be assessed by a selection board). Adaptability. A bombastic or dominant personality is not likely to do well in industrial nursing.

Training within Industry

FINALLY we have now to turn to what might be described as 'training on the job,' training within the industrial organization itself, designed to give an introduction to the organization and its own special processes, hazards and methods and to stimulate interest by giving members of its nursing service as wide an experience as possible within its own limits, as well as to keep their nursing technique and procedures up to date by regular refresher courses. It is recognized that in the small firm this can only be done to a limited extent and mainly by encouraging nursing staff to avail themselves of such courses provided by outside bodies, such as the Royal College of Nursing and the Universities. But in the large combine and organizations which operate through a number of dispersal factories, much can be done internally.

Training schemes now being launched in the Ministry of Supply Nursing Service may be of interest as an illustration.

Training Scheme within a Factory Nursing Service

(1) The issue to recruits to the service of an 'Initial Training Booklet' to serve as an introductory to factory organization and to its medical and nursing service. Subjects covered are:

(*a*) General factory organization and administration. Function of the personnel department and liaison with the medical department. Safety and A.R.P. organization.

(*b*) Medical and nursing service, responsibility, scope of duties,

When... PSORIASIS *is stubborn*

Chronic, highly resistant psoriasis so often responds to RIASOL that physicians ask:

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In either case, RIASOL's visible success stems from (1) removal of surface scales and (2) reaching underlying inflammation and infiltration.

RIASOL contains 0.45% mercury chemically combined with soaps, 0.5% phenol and 0.75% cresol. It contains only one-ninth the amount of mercury present in Ammoniated Mercury Ointment U.S.P., commonly used in treatment of psoriasis. For resistant cases requiring longer treatment this is a vital safety factor.

RIASOL's vehicle is non-staining, washable and odorless. Patients may continue at work without bandages.

Apply RIASOL daily after bathing with a mild soap. After one week, adjust to the patient's progress. RIASOL may be applied to any part of body, including face and scalp.

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After Riasol Treatment

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RIASOL *for* PSORIASIS

routine nursing procedures, medical and surgical emergencies in the factory surgery, medical record-keeping, occupational hazards, preventive and prophylactic measures.

(*c*) Main provisions of the Health, Safety and Welfare Sections of the Factories Act. The Government Compensation Scheme. National Health Insurance.

(2) Issue monthly to nursing staffs of *The Ministry of Supply Nursing Service Bulletin*. Contains articles by industrial medical officers and sisters, labour managers, safety officers, Works' chemists, etc., on industrial medicine and nursing, occupational hazards, accident prevention, etc. Also abstracts and digests on these subjects from medical, personnel and welfare journals, and the nursing press; book reviews, articles on social service and education. While much of general interest in these fields is included, the emphasis is on organization and hazards within our own factories.

(3) The establishment in three factories, representing each type of factory within the organization, of an initial training course of one week. Each recruit to the service will therefore have an initial training period of three weeks before taking up duty at the factory to which she is appointed.

(4) The establishment of three-day refresher courses held in a factory periodically and at least twice yearly for senior sisters.

(5) A period of training at a casualty and rehabilitation centre annually for senior sisters in order that they may keep up to date themselves and instruct their staffs in modern casualty technique.

(6) Subject to the exigencies of the service, attendance at week-end and one-day refresher courses organized by the Royal College of Nursing and Universities in London and the provinces is encouraged and travelling and subsistence allowances granted for such attendance.

APPENDIX

PRESENT TRAINING COURSES FOR INDUSTRIAL NURSES

A. The Royal College of Nursing Courses

(Note. The Royal College of Nursing was the pioneer in post-graduate training for industrial nurses in this country by inaugurating in 1934 a full-time course of one year's duration in conjunction with Bedford College for Women (University of London). Later part-time and six-months courses were also provided.)

A certificate is awarded to successful examination candidates on the completion of the courses. A minimum of 65 hours is devoted to lectures which are given by H.M. Medical Inspectors of Factories, industrial medical officers, industrial nurses, members of the Institute of Labour Management, staff of the Universities, and Public Health Departments, and other experts in the various aspects of the work.

During the course approximately half the time is spent in gaining practical experience in factories. In view of the wide divergence in conditions of work between one factory and another, even if engaged on similar work, every effort is made to ensure that students see not only different types of industry but also different forms of organization within industry. Throughout the course emphasis is laid on the preventive aspect of the work and the student is taught to regard health education as one of her duties. A study is made of the social and industrial background of the worker including a survey of the public health services. Group visits are arranged to illustrate the various subjects dealt with by the lecturers.

In the past these courses have been held only in London, but since 1943, through the generosity of the Nuffield Provincial Hospitals Trust, a grant has been made to the College, which has allowed of them being developed throughout the country. At present they are running in London, Glasgow, Leeds, Bristol; a course also began in Liverpool in January, 1944.

Note. Owing to the urgent demand for nurses during the war, only a three-months' course of training for the certificate is available, but nurses who have been employed in industry for at least two years, may enter for the examination on completion of the correspondence or part-time courses.

Syllabus of Three-Months Course

Health of the Industrial Worker 17 hours.

(*a*) Work of the medical section in industry. The scope of the medical department and its relationships with other organizations within and outside the factory. Examination of new entrants, prevention of epidemics, rehabilitation of injured persons. Treatment of minor ailments and the first care of medical and surgical emergencies. The organization of a first-aid service and the treatment of air-raid casualties. (*b*) Objects and methods of record keeping and guidance in the compilation of statistics. (*c*) Importance of vocational selection. Value of intelligence and dexterity tests. Effects of monotony, fatigue, boredom. The place of the defective in industry. (*d*) Factory legislation. The Factories Act, 1937, with special reference to factory hygiene, first-aid requirements, protected persons and work of the Examining Surgeon. War-time modifications of the Act. (*e*) Industrial diseases. The causes, occurrence and prevention.

Work of the Nurse in Industry 12 hours.

(*a*) The development of industrial nursing. The qualification and duties of an industrial nurse. Ethics. Planning, stocking and equipping the department. Nursing procedures in a work's surgery. Standing orders. Provision of ancillary services. Reports to management. Relationship to other departments. Study of environment and good working conditions. Co-operation with outside agencies. (*b*) The teaching function of the industrial nurse. Methods of conveying knowledge. Individual and group instruction. Methods of approach to different groups and ages. Preparation of notes and illustrative material. Demonstrations. Practical application. Preparation of talk. Presentation of talk to class and to training corps or club.

Work of Personnel Department 4 hours.

Works organization. Functions of Personnel Department and co-operation with Medical Department. Recruitment of labour. Apprentices, night school and continuation classes. Wages, upgrading and transfers within industry. Hours of work and absenteeism. Works rules. Committees, canteens and recreation. Problem of housing and transport.

Hygiene, Public Health Services and Communicable Diseases 13 hours.

(*a*) The importance of general hygiene with special reference to the problem and control of pediculosis and scabies. (*b*) Principles of diet, food values. Provision of canteens and problems of war-time catering. Balanced meals and the education of workers in choice of food. Modern methods of cooking. (*c*) Public Health Services. Types and work of local authorities. Maternity and Child Welfare schemes. The care of the child of the woman worker. War-time nurseries, nursery schools. Daily guardians. Adoption. Legitimacy Act. Affiliation orders. The housing problem. (*d*) The law relating to communicable diseases. The social aspects of these diseases with special reference to venereal diseases and tuberculosis. Mass radiography. Education of the public.

Social Services and Modern Industrial System 14 hours.

(*a*) Principles of relief and voluntary agencies. National Health Insurance. Pensions. Unemployment Insurance. Public assistance. Provision for the blind. Reconstruction and social security. (*b*) The structure of modern industry. Location, organization and control of industry. Large-scale production. Public and private monopolies. State control and private enterprise. War-time control of industry. Unemployment and trade cycles. Industrial relations. The history and functions of trade unions, trade boards, Whitley Councils. The function of Works' Councils and Joint Production Committees. Labour and wage legislation. Truck Acts.

Special Lectures 5 hours.

'Industrial eye casualties. Their nature, prevention and treatment,' with demonstration of nursing procedure. 'Work of the Probation Officer,' 'Accident prevention.' 'The work of the Hospital Almoner with special reference to Hospital Contributory Schemes.'

Visits of Observation to:

(*a*) Factories to see the medical departments, canteens, Air-Raid Precaution arrangements. Special hazards. Educational and recreational facilities. (*b*) Home Office Industrial Museum. Housing estate. War-time nursery. Health Centre.

Practical Work 6 weeks.

Spent in factories, business houses, hospital skin and ophthalmic departments and in visiting with district nurses.

Over 100 firms throughout the country are co-operating in the provision of practical work and visits of observation.

Enquiries and applications should be addressed to The Director of Education, The Royal College of Nursing, Henrietta Place, Cavendish Square, London, W.1.

B. The University of Birmingham and Birmingham Accident Hospital Course

Certificate in Industrial Nursing

A course of training in Industrial Nursing is arranged jointly by the University of Birmingham and the Birmingham Accident Hospital for a limited number of State Registered Nurses. The course extends over one year, at the end of which time nurses who have satisfactorily completed the year's work and attended at least two-thirds of the lectures will be eligible to enter for the examination for the University's Certificate in Industrial Nursing. The examination is held at the end of each course of lectures, viz.: March, June and December, and will consist of a written paper of three hours and an oral. The fee for the examination is one pound. Nurses admitted to the course and not already in industry are required to reside in the hospital.

The Course in Industrial Nursing consists of: (1) At least fifty lectures dealing with medical and social aspects of factory life. (2) Visits and demonstrations at works. (3) Training in special hospital practice. (4) Four weeks in work within a factory.

Resident Nurses

The fee for the course for State Registered Nurses resident at the hospital is £15, which for their convenience may be deducted by equal monthly instalments from the salary paid to them by the hospital, which is according to the Rushcliffe Scale for staff-nurses. These nurses are entitled to 28 days leave during the year of training.

Non-resident Nurses

A limited number of State Registered Nurses who were actively engaged in industry before the 28th April, 1942, are allowed to attend the course of lectures when recommended by their managements. The fee in this case is £5 5*s*. for each of the three terms of the course. Such nurses, having satisfactorily attended the course of lectures, are eligible to sit the examination for the Certificate in Industrial Nursing.

Candidates may enter for this training at the beginning of January, April or October. For the convenience of nurses the lectures are held at the hospital and two lectures per week are normally given during the University terms.

Synopsis of the Course

Course I

Section A

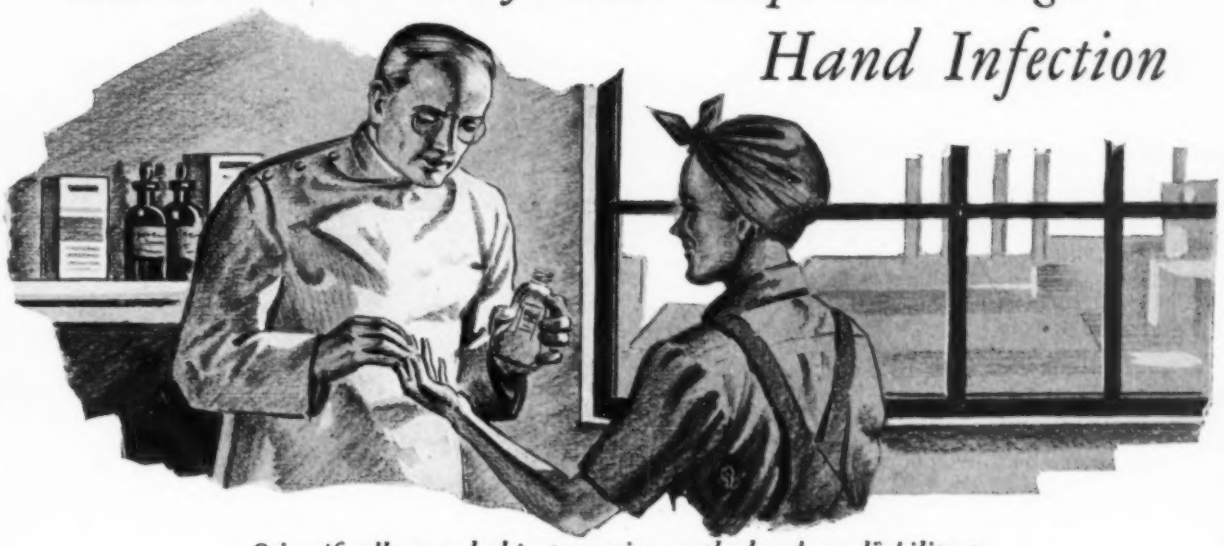
The history of industrial medicine and the development of factory medical services. The place of the doctor and the nurse in industry. Ethics. The design and equipment of works medical departments and ambulance rooms in large and small factories, including their organization, administration, records, etc. Health education. Nutrition and dietetics. Personal hygiene. Infestation. Factory hygiene, the Factories Act and its health requirements in relation to preventive medicine. Sickness absenteeism in industry—physical and psycho-

• TRUSHAY IS ECONOMICAL . . . ONLY A FEW DROPS IS ENOUGH FOR BOTH HANDS •

• KEEP TRUSHAY ON HAND IN DISPENSARY AND WASHROOMS FOR CONVENIENT USE •

• TRUSHAY IS EASY TO USE . . . THERE'S NO LASTING ODOR OR UNPLEASANT STICKINESS •

How Industrial Physicians Help Guard Against Hand Infection



Scientifically tested skin-protection method reduces liability to infection—aids nature's own care of the skin

Like an invisible glove, TRUSHAY LOTION provides a film over the skin surface which helps guard against the harsh, drying effects of grime, strong solutions and constant washing.

Tested—and found effective

The Test: Large numbers of workers with hands constantly exposed to dirt, grime and frequent washing applied TRUSHAY LOTION on one hand—not on the other. Both hands were repeatedly immersed in hot, alkaline solutions.

Results: The TRUSHAY-protected hands retained the natural skin lubricant (sebum), didn't pick up dirt so easily, and were cleaned more quickly. But the unprotected hands lost much of the natural skin oil and became dry and rough.

Recommend TRUSHAY'S twofold protection for the hands . . .

BEFORE exposure to dirt and grime, TRUSHAY insures comfort, helps keep the skin soft and supple, and reduces danger of infection through tiny fissures in dry, rough skin.

AFTER frequent washing, TRUSHAY aids nature in restoring the skin's natural lubricant and helps keep hands soft and pliable.

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logical causes and their prevention. Industrial fatigue. Industrial injuries, the teaching of first aid, casualty surgery of major and minor injuries, rehabilitation and workmens' compensation problems. Accident prevention. Eye injuries, their prevention and treatment. Occupational diseases—their prevention and treatment. The treatment of medical emergencies. Medical selection of entrants to industry. The management and adaptation of the medically unfit person in the factory. The health of the woman worker. The young person in industry. The nurse and Civil Defence duties.

Section B

Industrial Law and Relations. Industrial Administration and Social Services. What nurses need to know about the law—helping the injured workman—the law in war-time. Trade Unionism and its history—the Survey of Industrial Relations 1926—modern developments. Conditions of work in modern factories. Hours of labour, social environment and discipline, methods of wage-payment, wages and the standard of living, selection of workers. Effect of working conditions upon labour turnover, absenteeism, accidents, output and health, industrial fatigue and unrest. The study of industrial psychology. The control of working conditions: factory organization, welfare supervision and labour management. Safety measures. The keeping of statistical records. The development of our public social services. The present provision of both public and voluntary agencies. The social insurance scheme in respect of Health, Unemployment and Widows', Orphans' and Old Age Pensions. The work of the Assistance Board and of the Public Assistance Committee. The adequacy of the present provision and of the way in which further extensions may be looked for.

COURSE II

Visits to Works

This part of the course consists of practical lectures, demonstrations and visits to factories, at intervals throughout the year.

COURSE III

Hospital Practice

This includes training in the modern treatment of industrial injuries including first aid, and practical demonstrations of rehabilitation in all its phases, e.g. occupational therapy, recreational therapy, remedial exercises and physio-therapy. Nurses also have an opportunity of studying accident preventive measures at first hand, of obtaining some knowledge of liaison methods between hospitals and industry, the sociological problem of accidents, and the economics of absenteeism. Special training is also arranged at the Birmingham Eye Hospital and the Skin Hospital.

COURSE IV

Work in the Factory

This takes the form of four weeks' resident experience under the direct supervision of industrial medical officers and senior industrial nurses at one or more of the firms included in Course II.

Enquiries, communications and applications should be made to the Matron of the Hospital, from whom further particulars may be obtained.

Miss M. Bonthron, Matron, Birmingham Accident Hospital.

George Grant, Registrar, University of Birmingham.

C. THE UNIVERSITY OF LONDON

Diploma in Nursing

Under Part B candidates may offer 'Industrial Nursing' subject to the following Regulations:

(*a*) That her name has for not less than two years been on the General Part of the Register of Nurses, or that she has for not less than two years been eligible to sit for the examination admitting to that part of the Register; and (*b*) either that she holds a Certificate in Industrial Nursing of the Royal College of Nursing awarded after one year's course of study, and has had since completion of training one year's practical experience in a nursing capacity in a factory or business house which employs the services of a whole-time medical officer; *or* that she has had since completion of training three years' practical experience in a nursing capacity in such a factory or business house.

Industrial Nursing Syllabus. (Two papers, each of three hours, and an Oral Examination.)

(i) *Industrial and Social Conditions in Modern England.*

Industrial Conditions

Large-scale production and the modern organization of industry. The location of industry. Industry and the State; Public Utility; industrial regulations; Factories, Mines and Shops Acts. Industry and the Worker: Wages, Trade Boards and Whitley Councils; Truck Acts: Accidents and Compensation; Unemployment; Employers' Liability and Workmen's Compensation. Trade Unions and their problems.

Social Conditions

Social conditions and the administration of those public social services directly related to the welfare of the individual. Voluntary agencies and their relation to statutory bodies —constructive relief; indiscriminate relief. Public provision made for the protection of women and children; child adoption; boarding-out of children. Maternity and Child Welfare.

(ii) *Health of the Industrial Worker*

Factors involved in maintaining normal health. Physical and mental aspects. Preventive side of the nurse's work. Examination and care of young persons. The psychological effect of home and other environment and of employment on the health and development of adolescents. The scope of medical industrial psychology including the methods of study and research available for particular problems, with special reference to personnel management and vocational guidance. The place in industry of the mentally and physically abnormal.

Rest Pauses. Hours of work. Safety principles and appliances. Agencies dealing with national health and safety. Processes and principles of obervation. Procedure in visiting departments. Varieties of factory work. Instruction in the principles of accurate recording and of reading instruments of precision, including recording of blood pressure. Hygiene of outdoor life, including camps, holidays and games.

The causes, occurrences and prevention of illnesses and diseases. Treatment of minor ailments and the first care of medical and surgical emergencies. Heat stroke. Fracture clinics. The control of infection including tuberculosis and venereal diseases and their social significance. Social and medical services available for the worker.

(iii) *Work of the Nurse in Industry*

The history and present position of industrial nursing. Medical, hospital, district and visiting nursing services available. Educational duties with regard to group and individual instruction. Various methods employed. The equipment of the first-aid room. The buying of stores and dressings. Methods of keeping, filing and compiling systematic records and reports. Sickness rates and their interpretation. Charts and graphic methods of illustrating facts.

The industrial background. Factory organization, etiquette and relationship between welfare and other departments, co-operation with outside agencies. The work of an employment department. Industrial welfare, general working conditions and group insurance. Canteen and recreational activities.

The principal legal enactments, regulations and orders connected with the above-mentioned subjects.

Enquiries and Applications (temporary war-time address) should be addressed to: The Registrar, University of London, Imperial Institute Road, London, S.W.7.

DR. PILGRIM

A SEASON of interesting experiences, some new, together with interesting impressions, most mere confirmations. Of the former, the problem posed by employees in a plastics plant of injuries from the materials of manufacture, and the answer sought by management in a spirit of cooperation that promises much for the industrial relations in that plant. . . . A CONFERENCE with industrial physicians on a new type of medical service for small and medium-sized companies. . . . PERIODIC re-examinations, in lead processing, where the interest and cooperation of employees and employer are all that could be desired, contrasting with another situation where there is still much difficulty in convincing the employees of the necessity for periodic re-examinations in foundry dust exposures. . . . CONSULTATIONS on matters of medical service, management and employee relations, wherefrom it does persist that even among the best informed of personnel relations people and nurses there is constant and unremitting need for medical advice at all times. . . . CONSULTATION on the new problem of injuries by way of fluorescent powders. . . . AND study of the measures for rehabilitation and for selective placement, together with general results of the medical service, conducted by one of the big aircraft companies on the West Coast, deriving thence the proof that medical service in industry as exemplified by this experience can and does save an enviable magnitude of money. . . . WHEREFROM to the latter, as above set down, did lecture before senior and junior medical students on medicolegal aspects of workmen's compensation, with emphasis on the cost and severity of silicosis as an occupational disease, and again before medical students regarding health administration in industry and the organization and promulgation of industrial health programs—whence came once more, and with renewed reluctance, the acknowledgement that medical students are little interested in such matters because of thinking on lines of diagnosis and treatment; contrasting with the interest shown, and the intelligent questions asked, by the groups of industrial nurses before whom were also lectures on solvents, gases, vapors, heavy metals, fume fevers, and the like. . . . WHENCE to contemplation of this time of peace on earth, good-will toward men, of which there seems nothing of the one—a lack to be made up, perhaps, by more of the other, while still men struggle toward some far, yet-hidden goal of knowledge, surviving their errors, learning new ways, trying new things—wherefrom there sprang the recollection of something by Henry Thomas Buckle: "For the great enemy of knowledge is not error but inertness. All that we want is discussion and then we are sure to do well no matter what our blunders may be. One error conflicts with another, each destroys its opponent, and truth is evolved. This is the course of the human mind, and it is from this point of view that the authors of new ideas, the proposers of new contrivances, and, the originators of new heresies, are the benefactors of their species. Whether they are right or wrong is the least part of the question. They tend to excite the mind; they open up new faculties; they stimulate us to fresh inquiry; they place old subjects under new aspects; they disturb the public sloth; and they interrupt rudely, but with most salutary effect, that love of routine which, by inducing men to go groveling on in the ways of their ancestors, stands in the path of every improvement, as a constant, an outlying and, too often, a fatal obstacle."

. . . TO MEN OF GOOD WILL

That all men everywhere may breathe again as free men ☆ ☆ That suffering and oppression may vanish forever from the earth ☆ ☆ That all men may regain their self-respect ☆ ☆ That the labor of all men may be devoted to the good of mankind ☆ ☆ That the pain and the hurt of all men be mercifully healed ☆ ☆ That all may live in peace forever!

Wyeth

We, men and women of Wyeth . . . as one voice, make this wish. To the doctors and nurses in our Army and Navy in the far corners of the earth; to our doctors and nurses at home; to our druggists; we at Wyeth are proud to have been of service. Proud and honored to have received our third Army-Navy "E". To you, men and women of mercy—our hand and our utmost support at all times.

—*Continued from page 1010.*

U. S. Public Health Service,[2] reported that in establishments with over 100 employees, 20.3% of the workers had the services of a full-time plant physician and 27.6% those of a part-time plant physician; while in establishments with less than 100 employees, the comparable figures were only 0.4% and 5.6%, respectively. A report of the National Association of Manufacturers[3] showed that in establishments with less than 250 employees only 13% of the plants studied even had a physician in the plant at regular scheduled hours. A more recent study of 565 industrial establishments in New York City[4] gave even more discouraging figures. Of 11 plants with over 250 employees (total employment, 12,373), 45% had full-time medical service and 64% had full-time nursing service; but of 554 plants with less than 250 employees (total employment, 12,470), not one had a full-time physician and practically none had any nursing service whatsoever. We talk optimistically about progress in industrial medicine; but the fact is that about half our total working population is in small plants which have practically no effective service of this kind. Even of the workers in medium and large plants only about half have full-time medical service, so that not over a quarter of the total industrial population is adequately provided for. We may reasonably hope that the larger plants have learned during the past three years the values of industrial health and will provide such service for themselves after the war. But, what can be done about the small plants? The only possible way in which such plants can be supplied with the constructive health program which they need is by common services for groups of five, 10, or 20 such establishments. To expect that small industries will voluntarily combine on their own initiative to obtain such services is fantastically wishful thinking. There must be leadership. From what source can this leadership come? In communities where there is a medical school or a school of public health, the initiative might come from that source (as has been demonstrated on a small scale in one particular instance). In most areas, the health department is the only really practical source of leadership. The *Journal of the A.M.A.*, in discussing the report of the Council on Industrial Health, cited above, said, 'When it is found possible to extend qualified preventive medical assistance to such concerns (small plants), through the joint agencies of private practice and public health administration . . . an achievement will have been recorded in which all elements in the medical profession can take lasting satisfaction.' Is there not here an outstanding opportunity for the local health officer who desires to render constructive service to his community? In undertaking such a project, the first step would be the formation of a local committee including representatives of local industries and of the local medical society to study the problem. Such a study would, first of all, reveal the need for expert industrial hygiene counselling with regard to shop sanitation, control of industrial hazards, and the development of a comprehensive health program in small plants—more detailed and intensive than can be supplied by the state department of health. Local industry would quite certainly support appropriations for a trained industrial hygienist on the health department staff to provide such guidance. Next, the need would emerge for pre-employment and periodic health examinations and for industrial nursing service. A plan for providing these services could next be formulated, utilizing private practitioners of medicine and local visiting nurse organizations so far as possible but under the unified direction and supervision of the health department—without which direction and supervision no program can function effectively. Finally, the problem of remedial care would have to be faced—to be provided by the local medical profession under some plan of prepayment which would insure adequate service to the patient and adequate remuneration for the physician. How far such a program would go in a given community would depend on circumstances and on phychology. We feel sure, however, that the health officer who will take the first step of a survey of local conditions (in cooperation with industry and with the medical profession) will open the door to one of the most vital services any health administrator can render—the bringing of the benefits of modern industrial health service to that half of our employed population which works in the No-Man's Land of the small plant."

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THIS MONTH

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ference in size between any one of the organisms and another. . . . FURTHER on public health, the editorial from the current *American Journal of Public Health* (page 1010) has some very urgent significances. It is *re*printed here to suggest that it should also be *re*-read, for it shows that "unless" the medical profession rises to the opportunity—the demand—for leadership, some others will. It is a maxim of equity that the courts will not let a trust lapse for want of a trustee. So, the times and the circumstances will not let the situation that must have a leader continue indefinitely without one. The call will be answered—but, by whom? For those who ought to answer it and don't, there is the other maxim of equity that he who does not speak when he should will not be heard later to speak when he would. . . . DR. HELLER'S outline of a program for improvement of health work in small industrial plants (page 1024) reaffirms some important principles, among them the coordination of the activities of management, safety engineers, industrial hygienists, physicians and surgeons, and nurses. While this principle of coordination is not new, it is, as yet, not widely used in small plants. But there is the accompanying suggestion that this also "contemplates the sale with the contract of a minimum of medical—nurse—hygiene service by the carriers." There is likewise allusion to the use of governmental industrial hygiene bureaus in state and city health departments. These two things are emphasized and offered as part of the principle, in spite of the attention that is simultaneously called to the fact that if *private* American industry is to take the initiative this would seem to be the time. The necessity for coordination and leadership by American industrial physicians and surgeons is not mentioned. Perhaps this was implied, but the implication certainly loses force and matters little, because the suggestion here includes active—almost controlling — participation of insurance companies and industrial governmental hygiene bureaus. At no time in the history of industrial medicine and surgery are leadership and coordination by the industrial medical profession needed more sorely. One can point out examples in American industry where such coordination and leadership have been practiced by industrial physicians and surgeons individually, but they are yet too few in number to make anyone feel complacent about the leadership that should be taken by industrial physicians and surgeons in general. While there have been some good examples of excellent work done by insurance companies and by governmental industrial hygiene bureaus that have had very salutary effects, the great majority of instances where these organizations have been participants in such programs have been the cause of considerable anxiety on the part of industrial medical men, because they have been left out completely so far as medical administration of the activities involved is concerned. This points up the need—more, the demand—*for industrial medical leadership* from now on. As the editorial (page 1012) suggests, the indications point to *salesmanship*. . . .

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